

Testicles, along with the *Spermatic Artery*, and there communicates with it.

The external Branch of the outer *Iliaca*, *Tab. 5. Fig. 58.* goes off laterally from the Outside of that *Artery*, under the *Ligamentum Fallopii*; and from thence to the internal Labium of the *Os Ilium*, where it divides into two, and is ramified on the oblique and transverse Muscles of the Abdomen, communicating with the *Arteria Lumbaris*.

Besides these two Branches, the *external Iliaca* gives off a small Branch internally, under the Ligament which runs to the Vagina of the *Spermatic Cord*; and sometimes another small Twig goes from the Outside to the *Os Ilium*.

The *internal Iliaca*, or *Hypogastrica*, *Tab. 5. Fig. 55.* having run a little more than a Finger's Breath inward and backward, bends by small Degrees obliquely forward, and toward the Outside; and afterwards, contracting in its Dimensions, it ends in the *Umbilical Artery*, *Tab. 5. Fig. 56.* which ought to be look'd upon as a true Continuation of the Trunk of the *Hypogastrica*.

This *Arteria Umbilicalis* ascends on the Side of the Bladder; and having detach'd small Branches to that, and to the neighbouring Parts of the Peritonæum, it contracts; and, in Adults, is quite closed up, above the Middle of the Bladder, as in *Tab. 5. Fig. 56.* on the Right Side. It likewise gives Branches to the Uterus in Females, and to the Parts about the Pelvis in both Sexes. Afterwards it ascends, in form of a Ligament, to the Umbilicus, where it joins the *Umbilical Artery* on the other Side; its Name being taken from its Use in the Fœtus.

From the convex Side of the Curvature of the *Hypogastric Artery*, four or five principal Branches commonly go out very near each other. Sometimes they all arise separately, sometimes by small common Trunks; and what is the first Branch in some Subjects, is only a Ramification of another principal Branch in others; so much does the Number, Disposition, Origin, and Distribution of these Branches vary in different Subjects. For this Reason, I think it is fit to distinguish them by the following proper Names: *Iliaca minor*, *Glutæa*, *Sciatica*, *Pudica communis*, *sive Pudica Hypogastrica*, and *Obturator*.

The *Iliaca minor*, the most posterior of these Branches, and which is often no more than a Branch of the *Glutæa*, passes between the last two Lumbar Nerves, and divides into two Branches; one of which enters the Canal of the *Os Sacrum*, thro' the lowest large anterior Holes; the other passes behind the *Musculus Psoas*, to which it gives Twigs, and behind the *Crural Nerve*, being afterwards distributed to the *Iliac Muscle*, and to the middle Part of the Inside of the *Os Ilium*, penetrating into the Substance of the Bone, sometimes by one Hole, sometimes by more.

The *Arteria Glutæa* is commonly very considerable, and sometimes the largest of all the *Hypogastric* Branches. Near its Beginning it sometimes sends out the *Iliaca minor*, and sometimes the small Branch that goes from that *Artery* to the *Os Sacrum*, and other Parts fix'd to that Bone. Afterwards this *Artery* goes out of the Pelvis in Company with the *Sciatic Nerve*, thro' the upper Part of the great Sinus of the *Os Innominatum*, below the *Musculus Pyramidalis*, and is distributed, in a radiated manner, to the *Glutæus Maximus* and *Medius*.

In its Passage it gives some Branches to the *Os Sacrum*, *Os Coccygis*, *Musculus Pyramidalis*, the Muscles of the Anus, and to the neighbouring Parts of the *Intestinum Rectum*, forming a particular *Hæmorrhoidalis Interna*. It likewise sends Twigs to the Bladder, and parts near it; and detaches a pretty long Branch, which runs down with the *Sciatic Nerve*.

The *Arteria Sciatica* gives, first of all, some Branches to the *Musculus Pyramidalis*, the *Quadrigemi*, and the *Os Sacrum*, and even to the inner Side of the *Os Ischium*. It likewise detaches a Branch, which runs under the *Musculus Quadratus*, to the Articulation of the *Os Femoris*.

It passes obliquely over the *Sciatic Nerve*, and as they both go thro' the great posterior Sinus of the *Os Ilium*, it detaches small *Arteries*, which are distributed to the inner Substance of that Nerve. Afterwards it runs up in a radiated manner on the Outside of the *Os Ilium*, and is distributed to the inner Substance of that Bone, and to the *Musculi Glutæi*, especially to the *Medius* and *Minimus*.

The *Pudica Communis*, call'd commonly *Pudica Interna*, arises sometimes by a Trunk common to it and to the *Glutæa*, and gives out two principal Branches; the first of which passes thro' the great Sinus of the *Os Ilium*, in Company with the *Glutæa* and *Sciatica*, and then divides into two Branches.

The first Branch goes behind the Spine of the *Ischium*, between the two Ligaments which lie between that Bone and the *Os Sacrum*, and runs on the Inside of the *Tuberculum Ischii*, all the way to the Origin of the *Corpus Cavernosum Penis*: There it divides into several *Arteries*, one of which goes to the *Sphincter Ani*, under the Name of *Hæmorrhoidalis Externa*.

The rest are distributed to the neighbouring Integuments, to the Bulb of the *Urethra*, and to the *Corpus Cavernosum Penis*; but the last of these *Arteries*, or rather the Extremity of this

first Branch, runs from behind forward, over the Neck of the *Os Femoris*, and communicates with a Branch of the *Arteria Cruralis*.

The second principal Branch, call'd commonly *Arteria Pudica Externa*, runs between the Bladder and *Intestinum Rectum*, and is distributed in Men to the *Vesiculæ Seminales*; Neck of the Bladder, *Prostate Gland*; and neighbouring Parts of the *Rectum*.

Afterwards it runs under the *Os Pubis*, on the Side of a considerable Vein, which lies directly under the *Symphysis*; and it runs along the *Penis* between this Vein and a Nerve; being distributed in its Passage to the *Corpus Cavernosum*, and communicating with the *Pudica minor*, which comes from the *Cruralis*.

This second Branch of the *Pudica major* goes off sometimes separately from the *Hypogastrica*, especially in Women, being distributed to the lateral Parts of the Uterus, where it communicates with the *Spermatic Artery*, near the jagged Extremity of the *Tuba Fallopiana*, and to the neighbouring Parts of the Vagina.

The *Arteria Obturator* perforates the *Obturator Muscles*, from whence it has its Name, and goes out of the Pelvis at the upper Part of the Ligament of the *Foramen Ovale*; having first sent a small Branch, over the *Symphysis* of the *Os Ilium* and *Os Pubis*, to the *Inguinal Glands* and Integuments.

As it passes by the Muscles, it divides, and is distributed to the *Pectineus* and *Triceps*. It likewise sends out another Branch, which communicates with that Branch of the *Sciatica* which goes to the Articulation of the *Os Femoris*; and gives small *Arteries* to the Holes in the Neck of that Bone.

Afterwards the *Hypogastric Artery* ends in the *Umbilicalis*, as has been already said.

The CRURAL ARTERIES. *Tab. 5. Fig. 69.*

The *Iliac Artery* goes out of the Abdomen between the *Ligamentum Fallopii* and Tendon of the *Psoas*, at the Union of the *Os Ilium* and *Os Pubis*, and there it takes the Name of *Arteria Cruralis*.

It sends off, first of all, three small Branches; one of which, call'd *Pudica Externa*, goes over the *Crural Vein* to the Skin and Ligament of the *Penis*, and to the *Inguinal Glands*, communicating with the *Pudica Interna*. The second goes to the *Musculus Pectineus*; and the third to the upper Part of the *Sartorius*. All these Branches furnish likewise the neighbouring anterior Integuments.

Afterwards the *Crural Artery* runs down on the Head of the *Os Femoris*; and, by taking a particular Turn, gets on the Inside of the *Crural Vein*, about three Fingers Breadth from where it goes out of the Abdomen. From its Origin to this Place, it is cover'd only by the Skin and Fat, and lies on the *Pectineus* and *Triceps Primus*.

In changing its Situation it sends out three considerable Branches; one external, one middle, and one internal. They all go out, more or less, posteriorly; sometimes by a short common Trunk, sometimes by two.

The external Branch runs on the upper Side of the Thigh to the *Crureus*, *Vastus Externus*, *Rectus Anterior*, *Musculus Fasciæ Latæ*, and *Glutæus Medius*, sending up a Branch to the Apex of the great Trochanter, which communicates with the first principal Branch of the *Pudica major* and *Sciatica*, as has been already said.

The middle Branch runs down on the Inside of the Thigh, between the *Triceps Muscles*, to which it gives several Branches; one whereof perforates the second Muscle, and is distributed to the *Glutæus Maximus*, *Seminervosus*, *Seminembranosus*, *Biceps*, and to the neighbouring Integuments.

The internal Branch runs backward on the *Quadrigemi*, towards the great Trochanter; and having detach'd a Branch, which goes into the Joint of the *Os Femoris*, it runs downward, and gives Branches to all the Muscles that lie on the back Side of that Bone, one of which enters the Bone itself on one Side of the *Linea Aspera*.

Having sent off all these three Branches, the *Arteria Cruralis* runs down between the *Sartorius*, *Vastus Internus*, and *Triceps*, giving Branches to all the Parts near it: It is cover'd by the *Sartorius* all the Way to the lower Part of the Thigh, where it is inflected backward, over the *Triceps Tertius*, a little above the internal Condyle of the *Os Femoris*. Afterwards continuing its Course thro' the Hollow of the Ham, it is call'd *Arteria Poplitea*, being accompany'd by the Vein of the same Name.

The *Poplitea*, while in the Ham, is cover'd only by the Integuments, sending off Branches toward each Side, which run upon the Condyles, and communicate with the lower Ramifications of the *Arteria Cruralis*.

It sends Branches to the Joint of the Knee, one of which, at least, passes between the *Crucial Ligaments*. As it runs down, it sends Branches to the *Gastrocnemii* and *Popliteus*; and,

and, having reach'd the back Side of the Head of the Tibia, it gives off two Branches, one to each Side.

The first or internal Branch surrounds the fore Part of the Head of the Tibia, passing between the Bone and internal lateral Ligament; and, besides several other Ramifications, sends up a small Branch, which communicates with the *Arteries* that lie round the Condyles of the Os Femoris.

The second or external Branch runs over the Head of the Fibula, and between the Head of the Tibia and external lateral Ligament of the Knee, surrounding the Articulation all the Way to the Ligaments of the Patella, and communicating with the Branches which lie round the Condyles of the Os Femoris, together with a Ramification of the first or internal Branch.

Immediately after the Origin of these two Branches, and before the *Poplitea* ends, it sends a small *Artery* down on the back Side of the Interosseous Ligament, very near the Tibia; into which it enters by a particular Hole a little above the middle Portion of the Bone. As the *Poplitea* ends, it divides into two principal Branches, one of which runs between the Heads of the Tibia and Fibula, passing from behind forwards on the Interosseous Ligament, where it takes the Name of *Arteria Tibialis anterior*. The second Branch divides into two others; one internal and larger, call'd *Arteria Tibialis posterior*; the other posterior and smaller, named *Arteria Peronæa posterior*.

The *Tibialis anterior*, having pass'd between the Heads of the Tibia and Fibula, sends small Branches upward and laterally. The superior Branches communicate with those Ramifications of the *Poplitea* which lie round the Articulation; and the lateral Branches go to the neighbouring Parts. Afterwards this *Tibial Artery* runs down, on the fore Side of the Interosseous Ligament, toward the Outside of the Tibia, between the Musculus *Tibialis Anticus* and *Extensor Pollicis*.

Having run laterally on the Tibia for about two Thirds of the Length of that Bone, it passes on the fore Side, under the common annular Ligament and *Extensor Pollicis*, to the Articulation of the Foot; giving off several Branches both to the Right and Left Hand, which communicate laterally with the *Tibialis posterior* and *Peronæa posterior*; so that these two Bones are in a manner surrounded by *Arteries*.

At the Joint of the Foot it sends out Branches, which run between the Astragalus and Os Calcis, being distributed to the Articulation, and to the Bones of the Tarsus. The Communications are here very numerous on all Sides.

Having pass'd the Fold of the Foot, it sends off, toward both Sides, other Branches, which communicate with the *posterior Tibialis* and *Peronæa*; all these Branches making a kind of Circles round the Tarsus. Afterwards the *anterior Tibial Artery* advances on the convex Side of the Foot, as far as the Interstice, between the first and second Metatarsal Bones; between the Heads of which it sends a large Branch, which perforates the superior Interosseous Muscles, and, joining the *Tibialis posterior*, forms an Arch on the Side of the Foot.

It likewise sends two or three considerable Branches over the other Metatarsal Bones, which go to the rest of the Interosseous Muscles and Integuments, and communicate with each other.

Lastly, this *Artery* terminates by two principal Branches, one of which goes to the Thenar and Inside of the great Toe; the other is spent upon the Outside of the great Toe, and the Inside of the second Toe.

The *Tibialis posterior*, call'd likewise *Suralis*, runs down between the Solei, *Tibialis posticus*, *Flexor Digitorum communis*, and *Flexor Pollicis*; giving Branches to these, to the Tibia, and to the Marrow of that Bone, through a particular Canal in its posterior and upper Part.

Afterwards it runs behind the inner Ankle, communicating with the *Tibialis anterior*, and surrounded by the neighbouring Veins, and passes to the Sole of the Foot, between the concave Side of the Os Calcis and Thenar Muscle; where it divides into two Branches, one large or external, the other small or internal.

The great Branch, or *Arteria Plantaris externa*, passes on the concave Side of the Os Calcis obliquely, under the Sole of the Foot, to the Basis of the fifth Metatarsal Bone; and from thence runs in a kind of Arch toward the great Toe, communicating there with the *Tibialis anterior*, which perforates the Interosseous Muscles, in the Manner already said.

The convex Side of this Arch supplies both Sides of the last three Toes, and the Outside of the second Toe, forming small communicating Arches at the End, and sometimes at the Middle of each Toe, as in the Hand. The concave Side of the Arch furnishes the neighbouring Parts.

The small Branch, or *Arteria Plantaris interna*, having reach'd beyond the Middle of the Sole of the Foot, is divided into two; one of which goes to the great Toe, communicating with the Branch of the *Tibialis anterior*; the other is distributed to the first Phalanges of the other Toes, communicating with the Ramifications from the Arch already mention'd.

The *Arteria Peronæa* runs down on the back Side of the

Fibula, between the Soleus and *Flexor Pollicis*; to which, and to the neighbouring Parts, it gives Branches in its Passage.

Having reach'd to the lower third Part of the Fibula, it sends off a considerable Branch, which runs in between the Tibia and that Bone, passing between their Extremities, from behind, forward, below the Interosseous Ligament, and is distributed to the Integuments of the Tarsus.

Lastly, the *Peronæa* continuing its Course downward, on the back Side of the Fibula, as far as the Os Calcis, forms an Arch with the *Tibialis posterior*, between the Astragalus and the Tendo Achillis.

From thence it runs outward, and, a little above the outer Ankle, communicates with the *Tibialis anterior* by an Arch, which sends several small Ramifications to the neighbouring Parts.

In this Description of the *Arteries*, I have said nothing of the Cutaneous Anastomoses, which are exceedingly beautiful in the Fœtus; nor of the frequent and considerable Communications of small *Arteries* upon the Periosteum, which form a delicate kind of Net-work, or Rete Mirabile.

EXPLICATION of TABLE the Fourth, which represents the Situation of the principal Blood-vessels.

From EUSTACHIUS.

TABLE IV.

1. The Heart.
2. The *external Jugular*, on the Right Side, cut off.
3. The *internal Jugular* on the Left Side.
4. 4. The *Subclavian Vessels* on each Side.
5. 5. The *Axillary Vessels*, arising from the *Subclavian*.
6. 6. The *Cephalic Vein* on each Side.
7. 7. The *Vena Mediana* on each Side.
8. The *Vena Basilica* on the Right Side.
9. The inferior Part of the *Aorta Descendens*.
10. The *Vena Cava*.
11. The *Emulgent Veins*.
12. The *Kidneys*.
13. The *Iliac Vessels* on each Side.
14. The Blood-vessels of the *Penis*.

EXPLICATION of the Fifth TABLE, representing the *Arteries dissected out*.

From DRAKE.

TABLE V.

1. The *Aorta*, or *Arteria magna*, cut from its Origin at the Orifice of the Left Ventricle of the Heart.
- A. The three semilunar Valves of the *Aorta*, as they appear when they hinder the Blood from coming back into the Left Ventricle, when the Heart is in *Diastole*.
2. 2. The Trunk of the *Coronary Arteries* of the Heart, arising from the Beginning of the *Aorta*.
3. *Ligamentum Arteriosum*, not well express'd.
4. 4. The *Subclavian Arteries*, arising from the *Arteria magna*; from which the *Axillary Arteries*, and those of the Arms, (23. 23.) are continued.
5. 5. The two *Carotid Arteries*, the Right arising from the *Subclavian*, the Left from the *Aorta*.
6. 6. The two *Vertebral Arteries*, arising from the *Subclavicular*, which pass thro' all the transverse Processes of the *Vertebrae* of the Neck, from whence they are here freed.
7. 7. The *Arteries* which convey Blood to the lower Part of the Face, Tongue, adjacent Muscles, and Glands.
8. 8. The Trunks of the *Temporal Arteries* springing from the *Carotids*, and giving Branches to the *Parotid Glands*; and to,
9. 9. The neighbouring Muscles, hairy Scalp, and Forehead.
10. 10. Trunks which send Blood to the *Foramina Narium*, particularly the Glands of its *Mucous Membrane*.
11. 11. The *Occipital Arteries*, whose Trunks pass close by the *Mammiform Process*, and are distributed on the hinder Part of the hairy Scalp, where they are inosculated with the Branches of the *Temporal Arteries*.
12. 12. *Arteries* which carry Blood to the *Fauces*, *Gargareon*, and Muscles of those Parts.
- B. B. A small Portion of the *Basis* of the Skull, that is perforated by the *Artery* of the *Dura Mater*, here express'd, with Part of the *Dura Mater* remaining to it.
13. 13. The Contortions of the *Carotid Arteries*, before they pass the *Basis* of the Skull to the Brain.
14. 14. Those Parts of the *Carotid Arteries*, where they pass by each Side of the *Sella Turcica*, where divers small Branches arise from them, and help to compose the *Rete Mirabile*, which is more conspicuous in Quadrupeds than Men.
- C. The *Glandula Pituitaria*, taken out of the *Sella Turcica*, lying between the two contorted Trunks of the *Carotid Arteries* (14. 14.).

D. D.

D. D. The *Arteriae Ophthalmicae*, which spring from the *Carotids* before they enter the *Pia Mater*.

15. The Contortions of the *Vertebral Arteries*, as they pass the tranverse Processes of the first *Vertebrae* of the Neck, towards the great *Foramen* of the *Os Occipitii*. We have, more than once, taken Notice, that the Cavities of these *Arteries*, where they are contorted, have been larger than their inferior Trunks; whereby the *Impetus* of the Blood must necessarily be very much less'n'd, as well as by their Contortions only. In Quadrupeds the Angles of three Contortions of the *Arteries* of the Brain are more acute, which in them is the more necessary to lessen the Force of the Blood at their Extremities, by reason of the horizontal Position of their Trunks.

16. The two Trunks of the *Vertebral Arteries*, that lie on the *Medulla Oblongata*.

17. The communicant Branches between the *Carotid* and *Cervical Artery*.

18. 18. The Ramifications of the *Arteries* within the Skull; the larger Trunks of which lie between the Lobes of the Brain, and in its *Sulci*. From the Extremities of these *Arteries* of the Brain are continued its Veins, whose Trunks vary much in their continued Position from the *Arteries*, these entering the Brain at its *Basis*, and distributing themselves, as above noted; whereas the Trunks of the Veins are extended on the Surface of the Brain, and discharge their Blood into the longitudinal *Sinus*. Nor do the Veins of the Brain accompany their *Arteries* at their Ingress, as in other Parts, and as the *Arteries* and Veins of the *Dura Mater* do; both which pass thro' the same *Foramen* in the *Basis* of the Skull, B. B.

E. E. The *Arteries* of the *Cerebellum*.

19. 19. The *Arteries* of the *Larynx*, *Thyroid Glandules*, and adjacent Muscles and Parts, arising from the *Subclavian Arteries*.

20. 20. Others arising near the former, which convey Blood to the Muscles of the Neck and *Scapula*.

21. 21. The *Mammariae*, which arise also from the *Subclavian Arteries*, and descend on the Cartilages of the true Ribs internally, about half an Inch distant, on each Side the *Os Pectoris* or *Sternum*. Some Branches of these pass thro' the Pectoral as well as Intercoastal Muscles, and give Blood to the *Mammae*, where they meet with some Branches of the *Intercoastal Arteries*, with which they are inosculated.

These *Mammary Arteries* join with the large Trunks of the *Epigastrics* (57. 57.) also, by which means the *Impetus* of the Blood of the Integuments of the *Abdomen* is carried on with more Force: The Extremities of the *Intercoastal* and *Lumbal Arteries* also inosculate with each other, as well as these.

22. 22. The *Arteries* of the Muscles of the *Os Humeri*, and some of those of the *Scapula*.

23. 23. Those Parts of the large Trunks of the *Arteries* of the Arm, which are liable to be wounded in opening the *Vena Basilica*, or innermost of the three Veins in the bending of the Cubit.

24. 24. The Divisions of the *Arteries* of the Arm, below the Flexure of the Cubit.

25. 25. A communicant Branch of an *Artery*, arising from the Trunk of the *Artery* of the Arm, above its Flexure at the Cubit, which is inosculated with the *Arteries* of the Cubit below. In some Subjects you will not find this communicant Branch, as here represented, in whom there are divers smaller Branches of the same Kind. By these communicant Branches of the upper Part of the *Brachial Artery* with those of the Cubit, the Blood still passes, tho' the Trunk (23.) is firmly tyed; which is done in taking up the *Artery*, as it is call'd, when 'tis wounded in the Case of an *Aneurysm*: Besides firmly tying the Trunk of the *Artery* above the Place where it is wounded, it is also necessary to tie it in like manner below, lest the Blood, convey'd by the communicant Branches to the inferior Trunk, still pours out at the Wound of the *Artery* from below, in a retrograde manner.

26. The *external Artery* of the Cubit, which makes the Pulse near the *Carpus*.

27. 27. The *Arteries* of the Hands and Fingers.

28. 28. The descending Trunk of the *Arteria magna*.

29. The *Arteria Branchialis*, springing from one of the *Intercoastal Arteries*: It sometimes arises immediately from the descending Trunk of the *Aorta*; at other times from the superior *Intercoastal Artery*, which springs from the *Subclavian*. These *Branchial Arteries* inosculate with the *Pulmonary Arteries*. Vid. *Ruyfch. Epist. Anatom.* 6 Fig. c. c. c.

30. A small *Artery*, springing from the fore Part of the *Aorta Descendens*, passing to the *Gula*. *Ruyfch* tells us of Branches of *Arteries* from the superior *Intercoastal*, which go to the *Gula*.

31. 31. The *Intercoastal Arteries* on each Side the *Arteria magna Descendens*.

N. B. The Representations of the *Arteries* in this Plate, from Fig. 32. to Fig. 42. are not as they usually appear in Subjects. The References also do not agree with the Figures; and the Whole, in this Place, is much confus'd.

32. The Trunk of the *Arteria Cœliaca*, from whence spring,

33. 33. The *Hepatic Arteries*, and,

34. The *Arteria Cystica*, on the Gall-bladder;

35. *Arteria Coronaria Ventriculi inferior*.

36. The *Pylorica*.

37. The *Epiploica Dextra, Sinistra*, and *Media*, springing from the *Coronaria*.

38. The Ramifications of the *Coronary Artery*, which embrace the Bottom of the Stomach.

39. *Coronaria Ventriculi superior*.

40. 40. The *Phrenic Arteries*, or the two *Arteries* of the Diaphragm; that of the Left Side arising from the Trunk of the *Arteria magna*; the Right springing from the *Cœliaca*.

41. The Trunk of the *Splenic Artery*, arising from the *Cœliaca*, contorted!

42. Two small *Arteries*, going to the upper Part of the *Duodenum* and *Pancreas*; the rest of the *Arteries* of the *Pancreas* spring from the *Splenic Artery* in its Passage to the Spleen.

43. The Trunk of the *Arteria Mesenterica superior*, turn'd towards the Right Side.

44. 44. The Branches of the *superior Mesenteric Artery*, freed from the small Guts. Here the various *Anastomoses* the Branches of this *Artery* make in the *Mesentery* before they arrive at the Intestines, may be observed.

45. The *inferior Mesenteric Artery*; arising from the *Arteria magna*.

46. 46. Remarkable *Anastomoses* of the *Mesenteric Artery* with the *Superior*.

47. 47. The Branches of the *inferior Mesenteric Artery*, as they pass to the *Intestinum Colon*.

48. Those of the *Rectum*.

49. 49. The *Emulgent Arteries* of the Kidneys.

50. The *Vertebral Arteries* of the Loins.

51. 51. The *Spermatic Arteries*, which descend to the *Testes*, and are so small as to escape being fill'd with Wax.

52. *Arteria Sacra*.

53. 53. *Arteriae Iliacæ*.

54. 54. *Rami Iliaci externi*.

55. 55. *Iliaci interni*, which are larger in the *Fœtus*, proportionably, than in the Adult, by reason of their Conjunction with the two *Umbilical Arteries*.

56. 56. The two *Umbilical Arteries* cut off; that of the Right Side being drawn as in the *Fœtus*; the Left is express'd as in an Adult.

57. 57. The *Epigastric Arteries*, which ascend under the Right Muscles of the *Abdomen*, and are inosculated with the *Mammariae*, as above noted.

58. 58. Branches of the *external Iliac Arteries*, passing between the two oblique Muscles of the *Abdomen*.

59. 59. Branches of the *internal Iliac Arteries*, which convey Blood to the *Extensores* and *Obturatores* Muscles of the Thighs.

60. 60. The Trunks of the *Arteries*, which pass to the *Penis*.

61. 61. The *Arteries* of the Bladder of Urine.

62. 62. The *internal Arteries* of the *Pudendum*, which, with those here express'd of the *Penis*, make the *Hypogastric Arteries* in Women. The *external Arteries* of the *Pudendum* arise from the upper Part of the *Crural Artery*, which is immediately below the *Epigastrics*.

63. The *Penis*, distended with Wind, and dry'd.

64. The *Glans Penis*.

65. The upper Part or *Dorsum Penis*, cut from the Body of the *Penis*, and raised to shew the *Corpora Cavernosa Penis*.

66. 66. *Corpora Cavernosa Penis*, freed from the *Ossa Pubis*, and tyed after Inflation.

67. The two *Arteries* of the *Penis*, as they appear injected with Wax, in each cavernous Body of the *Penis*.

68. The *Capsula* and *Septum* of the *Corpora Cavernosa Penis*.

69. The *Crural Arteries*.

70. 70. The *Arteries* which pass to the Muscles of the Thighs and *Tibiae*.

71. That Part of the *Crural Artery* that passes the Ham.

72. The three large Trunks of the *Arteries* of the Leg.

73. The *Arteries* of the Foot, with their communicating Branch, from their superior to their inferior Trunk, as well as their Communications at the Extremity of each Toe, like those of the Fingers. *Drake's Anatomy*.

ARTERIALIA, ἀρτηριακά, are Medicines against the Disorders of the Voice and *Aspera Arteria*, whence they take their Name. *Blancard*.

ARTERIOTOMIA, Arteriotomy. The opening of an Artery with a View of taking away Blood.

This Operation was much practis'd by the Antients, and is now actually much in Use in some foreign Nations, however rare in Europe. *Oribasius* gives an Account of it from *Galen* and

and *Antyllus*: *Paulus Ægineta* speaks of it as a thing commonly practised; and *Prosper Alpinus* tells us, it is frequently performed in *Egypt*. It is from these Authors, and *Heister*, I shall give the Particulars of Arteriotomy.

Physicians cut the *Temporal Arteries* for a Defluxion of hot and flatulent Humours into the Eyes, and the *Arteries* behind the Ears of Persons subject to a Vertigo, especially if they have been long afflicted with Disorders in the Head, proceeding from Heat and Wind, or any other chronic Distemperature of that Part.

When any other Place is affected, they do not cut the *Arteries*, though there are many Parts which require to be relieved this way, rather than by opening a Vein; for where-ever a Disorder arises from a Collection of hot and flatulent Blood in the *Arteries*, the affected Part requires *Arteriotomy*. But since it is difficult to stop the Flux of Blood, and when the Wound is brought to cicatrize, there commences an *Aneurysm*; for these Reasons, Physicians have been cautious of opening the larger *Arteries*; and as for the smaller, they forbear them, as thinking them of little Service: However, the Cutting of a small *Artery* has been known to do much Good, and the Wound has been cicatrized without an *Aneurysm*; and even if one of the larger *Arteries* be opened, a Cicatrix may be induced on it without an *Aneurysm*, that is, by means of cutting it quite through, the doing of which has often delivered the Patient from the Danger of an Hæmorrhage. For it plainly appears, that when the *Artery* by a cross Section is divided in two, both Parts being retracted, one retires upwards, and the other downwards. For my own part, having received some clear Admonitions in my Dreams, I cut the *Artery* which lies between the Thumb and Fore-finger of my Right Hand, and suffered the Blood to flow till it ceased of itself; for so I was ordered in my Dreams; but the Quantity was less than a Pound. By this means an inveterate Pain, which principally affected that Part where the Liver joins to the Diaphragm, went off on a sudden. Another, by a Wound in his Ankle, had an *Artery* cut, which ceased not to bleed, till I was sent for; when I came, I divided the *Artery* in two, after which I applied a Remedy, which consisted of Aloes, Frankincense, and Whites of Eggs, spread upon the soft Fur of Hares; and the Wound was cicatrized without an *Aneurysm*, the Orifice of the *Artery* being incarn'd; and the Patient, who for four Years past had felt a Pain in his Hip, with very short Intervals, was perfectly cured from that Time. This Success has often induced me to use *Arteriotomy* in the Joints of the upper Extremities, and in the Head itself, for all Pains proceeding from a hot and flatulent Matter; but especially when a Membrane is affected with a sort of pricking Pain, which extends itself by Degrees in such a manner, that the pungent Sensation seems, as it were, fixed in the Centre of the Place affected, while all the circumjacent Parts labour under a Tension. *Oribasius*, *Med. Collect. Lib. 7. Cap. 13.* from *Galen*.

We cut the *Artery* that lies under the Top of the Head towards the hinder Part, among the Tendons; or we open the *Artery* behind the Ears, or those which lie on each Side of the *Vertex* towards the fore Part of the Head, for they belong to the coronal and middle Sutures. Those *Arteries* which reach from the Temples to the Forehead, are not cut, because they are situated against a Muscle; but they may be safely opened, if the Patient, in Compliance with Directions, move his Cheeks forcibly, by which means all the Muscles of the Temples, throughout their whole Extent, are visibly put in Motion. We have an Opportunity then of letting alone the Part in the Forehead that moves, and making the Section in the Part that is at Rest. However, the Blood does not flow very fast, nor in any great Quantity, from these *Arteries*, because of their Smallness; nor does it issue forth with much Spirit, because they approach the Nature of Veins. The *Arteries* before the Ears, where the Muscles of the Jaws arise, are very firm and strong; but are seldom cut without Danger, because of the Nearness of the Muscles, and the Foldings of the Membranes of that Place. In the *Arteriotomy* on the Occiput, the *Artery* is to be cut home to the Bone, which is to be scraped, that Flesh may repullulate upon it for the Reception of the Mouths of the *Artery*. In cutting the *Artery*, the best way is to treat it like a Varix, by taking it up with the Forceps, or some such Instruments, and making not a great Incision, but several small ones. When you have drawn off a sufficient Quantity of Blood, the Vessel is to be taken up with the Forceps, and quite divided; for by this means it will never be joined again, nor will there be any Danger of an Hæmorrhage, the Mouths of the *Arteries* being drawn back into the Flesh. *Oribasius*, *Med. Coll. Lib. 7. Cap. 14.* from *Antyllus*.

For Defluxions in the Eyes of long Standing, and vertiginous Affections, we use to cut the *Arteries* behind the Ears. In order to this Operation, the hinder Part of the Head is first to be shaved, and then felt with the Fingers; for by the Pulse in that Place, we very easily discover the Situation of the *Artery*. We then cut home to the Bone, making an Incision of two Fingers Breadth in Length, the Place being before marked with

Ink. If we miss the *Artery*, we are to take the Distance of three Fingers Breadth from the Ears, and perform the Operation, cutting the *Arteries* across, till we perceive the Blood to flow with a Pulsation, and our Instrument touches the Bone. After taking away a moderate Quantity of Blood, we divide the Pericranium, that it might not be distended, and so inflamed; and having scraped the Bone, thrust a Linen Tent into the Wound, and heal it with Dressings of Lint. If the Bone in that Place still remains bare, we repeat the scraping it. *P. Æginet. Lib. 6. Cap. 4.*

Arteriotomy, or the opening *Arteries* in order to procure an Evacuation of Blood, was among the *Egyptians* an Operation as common, and undertaken with as little Dread, as Venesection itself. This Practice they not only used on many Occasions, but looked upon it as a divine Secret, and the safest and most infallible Means of Recovery in long-standing and inveterate Inflammations of the Eyes; as also for long-protracted Head-achs, and obstinate Pains of the Viscera.

Some Physicians in After-ages declared themselves Enemies to this Practice, and supported their Judgment by a Passage of *Galen*, who [*in Lib. de Curat. per Sang. Miss.*] has these Words: "I have known some die in Consequence of the inferior *Artery* of the Cubit lying under the Vein being opened. In some I have found Gangrenes immediately produced by the Application of Bandage, with a View to stop the Hæmorrhage; and I have known others expire under the Operation for the Aneurysm." They imagined, that an opened *Artery* could not be agglutinated, and that the Danger of an Aneurysm, at least, and even of Death itself, must of Consequence be the Result of *Arteriotomy*. But these Physicians seem to have forgot the Reasoning of *Galen* their great Master, in the sixth Chapter of the fifth Book of his *Methodus Medendi*, where he uses these Words: "Some, says he, assert that one of the Coats of an *Artery* is hard and cartilaginous; and a Substance of that Nature cannot possibly coalesce and agglutinate, since a Disposition to join and unite is only found in soft Bodies. As in external Objects we do not find, that a Stone, for Instance, unites with its Neighbour Stone, nor a Shell with a Shell; so neither with ourselves do Cartilages unite with Cartilages, nor Bones with Bones; for broken Bones do not cohere by Union, but are joined by a glutinous Callus, which the *Greeks* call *τρωχ*. It must be owned, that such is the Nature of an *Artery* as to render the Agglutination of its hard Coat difficult; but yet this Difficulty is not altogether unmountable, since an *Artery* is neither so dry nor so hard as a Bone or Cartilage, but much softer, and of a more fleshy Nature. And we have the less Reason to despair of agglutinating the Orifice of an *Artery*, since the *Artery* itself is small, and the Body of a Man of a soft and yielding Nature. Experience herself seems in this Case to join her friendly Voice to Reason, since in Children and Women, who have moist and soft Bodies, I have seen the *Arteries* agglutinated; and especially in one Youth, who had one of his *Arteries* slightly cut. But though an Orifice in an *Artery* is more difficultly agglutinated, than that in a Vein, yet the Medicines used in both Cases are not very different, but plainly of the same Species, and only vary in Degree; for an *Artery* requires Medicines somewhat drier than a Vein; but if the Intention is to produce Flesh around the Orifice, the Medicines to be used are the same in both Cases." Two things concur to render the Agglutination of *Arteries*, and the Cure of Ulcers formed in them, difficult; for, as *Galen* justly observes, that Ulcers in the Lungs cannot be cured by reason of their continual Motion; so the Motion and Pulsation of the *Arteries* is a great Obstruction to the Agglutination of Wounds made in them. The Difficulty of Agglutination is also augmented by the Hardness of that Substance of which the *Artery* consists. The Pulsation of the *Artery* is most efficaciously prevented by the Application of a smooth, round and thick Plate of Brass, after having duly united the Orifice.

The *Egyptians* used to open all the *Arteries* discoverable in the Head; for in Head-achs of a long standing, especially such as are attended with Pulsation, and in all Inflammations of the Head, they used to cut the *Arteries*, and those placed behind the Ears; in opening all of which they were successful; but they most commonly opened that in the Forehead, especially in case of old Inflammations of the Eyes; and I myself, when in *Grand Cairo*, saw many cured, as by a Charm, of old Head-achs, and obstinate Inflammations of the Eyes, by opening the *Artery* in the Forehead, and making a sudden Evacuation of Blood. This Practice was known to *Galen*, as is plain from these Words in the fourteenth Book of his *Methodus Medendi*: "The Head, says he, must be shaved, and those *Arteries* which are situated near the Ears, and those behind them, those also in the Forehead and Temples, are to be carefully felt. And those of them which are felt warmer, and whose Pulsation is stronger than that of the others, are to be cut. But of those which are small, and lie near the Skin, it is proper to cut out a Part, as we used to do in *Furuncles* of the Legs." This Practice is very frequent among the *Egyptians*,

and that very deservedly, since the *Arteries* which appear large and warm, contain much hot Blood mixed with a kind of flatulent Matter.

“ Among the several *Arteries* of the Head, the *Temporal* is sometimes burned; and this is done with a View to intercept and cut off these subtle Defluxions, which fall down upon the Eyes: And the two *Arteries* behind the Ears are opened for certain Species of Ophthalmics, watry Humours, *Nyctalops*, and old Pains of the Liver; but there is always some Danger in opening them, and they require a long Time to consolidate.”

I never indeed saw the *Egyptian* Physicians cut an *Artery* quite thro', or contract any Part of it; but I have often seen them open *Arteries* just as we do Veins. They often burn the *Temporal Arteries* in order to prevent Fluxions on the Eyes; for which Reason you may observe many People in all Parts of *Egypt* with their Temples burned. This Practice of burning the *Temporal* and other *Arteries*, they first had from *Ethiopia*; for many of the *Ethiopians* and *Abysinians* use this Method of burning. I never saw, that any of them used this Operation on the *Arteries* behind the Ears for Disorders of the Eyes, and Pains of the Liver; for when the Liver is affected, they used to open the *Artery* between the Thumb and Fore-finger, which Practice is also approved of by *Galen*, in his Book *De Curat. per Sang. Miss.* These Physicians also told me, that they opened the *Jugular Arteries* in Patients who were in Danger of Suffocation, but I never had an Opportunity of seeing that Operation performed. They open the *Artery* between the Thumb and fore Finger, for Pains and Inflammations of the Viscera. The Method of opening an *Artery* among the *Egyptians* was this: The Operator first of all applies a Linen Ligature to the Part in which the *Artery* is to be opened, just as in Venesection; and suffers the *Artery* to become turgid, and full of Blood; then he makes an oblique Incision with a very sharp Lancet or Incision-knife; but in performing this Operation, the Incision ought always to be made very little, because the Blood contained in the *Arteries* is very thin, and because a large Orifice agglutinates with more Difficulty than a small one. Having thus opened the *Artery*, he takes away as much Blood as he judges necessary: But the Rule observed by most, with regard to the Quantity of Blood to be taken, is to let it flow till it stops of its own Accord. When a sufficient Quantity is taken away, they bring the divided Lips of the *Artery* into Contact with their Fingers, just as we use to do these of Veins; then they apply a little Cotton to the Orifice of the *Artery*, over which they lay a large Brass Coin, called by them *Fellara*, which they tie upon the wounded *Artery* for three Days; at the End of which Time they take away the Ligature and Coin, using no other Step in the Cure; and all the times I saw this Operation performed, I observed the Patients rendered entirely sound by the foregoing Method. Others, before tying the *Artery*, and applying the Cotton to it, use a little Frankincense made warm in the Flame of a Candle, with which they unite the Lips of the Orifice; then they apply the Cotton, and, last of all, the *Fellara*. Two things then, in the *Egyptians* Method of performing this Operation, deserve to be duly reflected upon: First, that they made the Incision very small, oblique, and with a very sharp Instrument. Secondly, the Application of the Brass Coin, by means of the Coldness and Hardness of which the Pulsation of the *Artery* was so far destroy'd, as to allow the Agglutination and Cure of the Incision made in the *Artery*. *Prosser. Alpini Medicina Aegyptiorum.*

The Word *Arteriotomy*, according to its Etymology, signifies that Chirurgical Operation, by which, for the Safety of the Patient, the *Arteries* are opened almost in the same manner with the Veins, in order to procure a Discharge of Blood. But though in our own Days this Operation is not so frequently attempted as in former Ages, for fear not only of too great an Effusion of Blood, but also of an *Aneurysm*; yet if it is cautiously performed, it has the Suffrage of the greatest Physicians in its Favour, as being a Practice of singular Use, and unattended with any bad Consequences. Accordingly we read of the more ancient Physicians opening *Arteries* in various Parts of the Body; in the Forehead, for Instance, in the Temples, behind the Ears, in the hinder Part of the Head, between the Thumb and the fore Finger, and in every other Part of the Body where the Pulsation was felt by the Touch. The modern Physicians, on the other hand, scarce open any other *Artery* than that situated in the Temples; for it is generally most easily opened, because it is sufficiently exposed to the Touch; and its Aperture is attended with the least Danger, either of an Effusion of Blood, or an *Aneurysm*, because it lies on the *Os Frontis*, and may therefore be easily compressed. No one in his Senses will, however, deny that 'tis, for the most part, far more difficult to open *Arteries* than Veins, since the former are not exposed to our Sight, but must be discovered by the Impressions made on the Touch by their Pulsations. But not to spend Time in describing the now obsolete Methods of *Arteriotomy* practised by the Antients, I come to give an Account of that used by some of the later and more modern Surgeons.

The first Step then to be taken is, to place the Patient in a Chair or Bed, and make him recline his Head from that Side on which the *Artery* to be opened lies. Then the Surgeon is carefully to explore and find out the *Artery*, in which the Incision is to be made; the most proper Method of doing which, is by applying his Left Hand to the Temple in which it lies. Then having discovered the *Artery* by its Pulsations, and duly observed its Situation, he is to fix and secure it by his two first Fingers, which must yet be removed at such a Distance from each other, that a Lancet may be commodiously passed between them into the Cavity of the *Artery*. But the Lancet must, for the most part, be passed deeper in this Operation than in Venesection, and carried transversely upwards in its Retraction, to the end the *Artery* may be the more infallibly reached; nor is there any Danger, though the whole *Artery* should be cut asunder. As soon therefore as the Incision is made, if a ruddy and florid Blood, whose Stream, as it were, beats Time to the several Pulsations of the *Arteries*, bursts from the Orifice, we are sure the *Artery* is opened, and the Operation well performed. But if it should happen otherwise, the Lancet is a second time to be passed deeper, till by the forementioned Signs we discover, that the *Artery* is either opened, or cut asunder. But as the Point of an ordinary Lancet is slender, and may on this Occasion be easily broken on the Bones of the Head, I have learned from Experience, that this *Artery*, especially if the Incision is made downwards, and not upwards, may more commodiously be laid open by a strait Incision-knife, represented by the Letter G, in *Tab. 22.* But that the Operation may produce the more happy Effects, a large Quantity of Blood, that is, a Pound, or, if a Plethora call for it, a Pound and an half, may be allowed to flow from the *Artery*, otherwise its having been opened proves of little Service; so that we need not be surpris'd at the ancient Physicians, whose Practice was to allow the Blood to flow till such time as the Patient began to faint away. If an *Artery* is to be opened behind the Ear, in the back Part of the Head, or in any other Part of the Body, this same Method is to be followed, so far as the different Situations of Parts, and other Circumstances, will admit of it.

When as much Blood is taken from the Patient as the Physician shall judge proper, Bandage must be forthwith applied; for which Purpose three square Compresses of different Sizes must be provided. The least of these must be applied immediately to the Orifice, the intermediate one over it, and the largest over both: Nor on this Occasion is it improper to fold up a Piece of Money, or a small Piece of Lead, in the undermost or intermediate Compress, or to apply a Piece of chewed Paper to the Orifice itself, using the Compress at the same time over it; for thus the Blood will not only be the more easily stopped, but the opened *Artery* the more effectually preserved from bursting out afresh. And that all these may be the more securely fixed upon the Wound, the knotted Bandage, (See *FASCIA NODOSA*) or some other proper Bandage, must be applied pretty tight, and kept so for about eight Days, that an *Hæmorrhage* or *Aneurysm* may be the more effectually guarded against; and if it should happen to be relaxed, it is again carefully to be rendered tight, and so kept, if possible, till the Wound is entirely agglutinated.

As for the Uses of *Arteriotomy*, they are by some Physicians extolled as so numerous, and of a Nature so uncommon, that the most obstinate Diseases of the Head and Eyes, provided they owe their Origin to too great a Quantity of Blood, must receive remarkable Relief from this Operation, even after they have resisted the Force of all other Medicines. It is also a common Observation, that *Arteriotomy* is generally highly beneficial in Vertigos, obstinate Head-achs, Epilepsies, Suffusions, and Inflammations of the Eyes, proceeding from too great a Quantity of Blood. And *Catherwood*, a late English Writer, has in a Book, intitled, *A new Method of curing the Apoplexy*, endeavoured to shew, that the *Morbus Atomitus*, or *Apoplexy*, may be very speedily removed by it; but I must on this Occasion take Notice, that I myself performed the Operation of *Arteriotomy* upon two *Apoplectic* Patients, one of whom was young, and the other old; but they both soon after died, notwithstanding the Operation was performed in the very Beginning of the Disease, and other proper Remedies were used; so that *Arteriotomy* is not always effectual in Apoplexies. Since *Arteriotomy* then is observed in many Cases to be attended with Advantages superior to those of Venesection, and since the whole Danger of it may be prevented by proper Compress and Bandage, we may hence be enabled to make a due Estimate of the Opinion of those who not only pronounce it dangerous, but also place it upon a Level with Venesection in point of Efficacy. Notwithstanding what has been said, I must nevertheless own, that those Physicians most effectually consult both the Welfare of the Patients, and their own Reputation, who in Diseases, where Life is not immediately threatened, never have recourse to *Arteriotomy*, till they have found all other Remedies ineffectual. But, that the Effects to be expected from this Operation may be the more speedily and sensibly produced, it seems necessary, at the same time, to injoin a proper Regimen, and other

other Medicines, that have a Tendency to remove the Disorder under which the Patient labours, and for which the Operation was performed. *Heister's Institutiones Chirurgicae.*

ARTETISCIUS, ARTETISCOS. One who suffers the Loss of any Member. *Rulandus.*

ARTHANITA. A Plant of which *Dale* mentions two Sorts. The first is the

Arthanita Cyclamen; Offic. *Cyclamen*, Schrod. Lib. 4. p. 59. *Cyclamen orbiculato folio*, Ger. 694. Emac. 843. *Cyclamen orbiculato folio inferne purpurascens*, C. B. Pin. Tourn. Inst. 154. Elem. Bot. 158. Boerh. Ind. A. 2. 150. Hist. Oxon. 3. 552. *Cyclamen vulgare, folio rotundo*, Park. Parad. 198. *Cyclaminus folio rotundiore vulgatiore*, J. B. 2. 551. Raii Hist. 2. 1205. *Cyclamen, Panis Porcinus*, Chab. 510. SOW-BREAD.

The Root of Sowbread is round, and somewhat flattish, like a small Turnep, of a dark-brown Colour on the Outside, with several dark Fibres shooting from the Bottom. The Leaves grow on thick, reddish Stalks, of a darkish Green above, frequently marked with white Spots, and underneath of a reddish or purplish Colour, in Shape like the Leaves of *Asarabacca*, round, and hollow'd in next the Stalk. Among these arise the Flowers, each on its own Foot-stalk, which is usually slenderest next the Ground. They are made up of one single pendulous Leaf, divided into five sharp-pointed Segments, which turn themselves backward when they open, and are of a pale purple or bloom Colour: When these are fallen, the Stalk with the Seed-vessel coils itself round towards the Earth like a little Snake. Sowbread is planted with us only in Gardens, its native Place being the *Alps*, and the Mountains of *Austria* and *Styria*. It flowers in *September* and *October*.

The Root of Sowbread is very forcing, and principally used to bring away the Birth and the Secundines, and to provoke the Menfes. The Juice is commended by some against vertiginous Disorders of the Head, used in Form of any Errhine. It is of Service also against cutaneous Eruptions. *Miller's Bot. Off.*

Dale says it should be used with Caution internally.

The second is the

Cyclamen Arthanita, Offic. *Cyclamen hederæ folio*, Ger. 694. Emac. 843. Raii Hist. 2. 1206. C. B. 308. Tourn. Inst. 155. Boerh. Ind. A. 2. 151. Hist. Oxon. 3. 552. *Cyclamen folio hederæ, Autumale*, Park. Parad. 296. COMMON SOWBREAD.

This Species agrees in Virtues with the preceding; and is the sort which is kept in our Shop. *Dale.*

ARTHETICA, or ARTHRETICA, is the Herb Ground-pine, so called from *ἀρθρον*, a Joint. It cures Affections of the Joints. *Blancard.*

ARTHOICUM is a red Oil extracted from the Roots of Herbs together with Bread artfully digested in Dung. *Ruland. Johnson.*

It should rather be written **ARTOICUM**, as *Castellus* observes, because derived from *ἀρτος*, Bread. *Rulandus* calls it also *Pannonium*.

ARTHREMBOLUS, *ἀρθρέμβολος*, from *ἀρθρον*, a Joint, and *ἐμβάλλω*, to impel, or force in. An Instrument, by means of which the luxated Bone of a Joint is restored to its natural Place and Situation. *Castellus* from *Sponius*.

ARTHRITICA, *ἀρθρίτις*, is the same as

ARTHRITIS, the Gout, from *ἀρθρον*, a Joint; as if we should say the Disease of the Joints, or Joint-evil.

So much has been said on this Distemper by Authors of almost all Ages; and so many trifling Theories have been erected with respect to the Gout, that it would take up a great Number of Volumes to give only an Extract of what has been said on this copious Subject. Much of this I shall therefore pass over; and the Reader will sustain but little Loss by this Omission, because Success in Practice, the only thing which can render a Theory valuable, has not yet confirmed the Speculations of any Author; insomuch that the Distemper has remained incurable, notwithstanding all the Visions of Theorists, and Boasts of Empirics.

The Method I shall take in this Article will be to give, first, the Sentiments of two Authors only amongst the Antients, which are *Aretæus*, and *Cælius Aurelianus*.

Secondly, the History of the Distemper from *Sydenham*.

Thirdly, the History of the *Anomalous*, or Irregular Gout, with the Method of Cure, from *Musgrave*.

And lastly, I shall take the Liberty of making some Remarks relating to this obstinate Distemper.

From **ARETÆUS**.

The Pain which affects all the Joints in common is an *Arthritis*; if it be seated in the Feet, it is called *Podagra*; if in the Hips, it is a *Sciatica*; if in the Hands, a *Chiragra*: And thus it is, whether the Pain immediately attacks the Patient from some sudden Cause; or the Matter of the Disease, which

had for a long time lain dormant, is, upon some slight Occasion, kindled into a Fit. If the Disease becomes universal, it affects the whole nervous System. The Pain first seizes the Nerves, the Ligaments of the Joints, and all those Parts which arise from and terminate in the Bones. And here it is Matter of great Admiration, that the Bones, which are utterly insensible to a Cut, or a Bruise, should under this Distemper acquire so exquisite a Sensation of Pain, as no Blows from an Iron Bar, no Compression with Cords, no Wounds with a Sword, nor Burnings with Fire, are capable of producing, but are rather wish'd for and chosen as Alleviations and Remedies of greater Pains. Nay, if the affected Bones were even to be amputated, the Pain endur'd under the Section would be diminished, as a small thing is by Comparison with a greater; or, if it should happen to prevail, the Patient would by that means receive a Pleasure from the Oblivion of his former Pain. Such then are the Misfortunes which are incident to the Teeth, as well as the Bones.

The true and undoubted Cause hereof is only known to the Gods, but Men may be allow'd to assign a probable Reason for it, which I shall do in short as follows. Bodies of a very dense Substance are insensible to the Touch and Wounds, and therefore can feel no Pain from such Impressions: For Pain is a Sensation of Asperities; but a dense Substance is not subject to be exasperated, and therefore is insusceptible of Pain: On the contrary, whatever is of a rare Contexture, is quick of Sensation, and exasperated with a Wound. But since dense Substances are also animated by their native Heat, they exercise Sensation by the same Heat. Tho' there be a substantial efficient Cause then of a Wound, as a Sword, or a Stone, the Substance of the suffering Body receives no painful Sensation, because of its natural Denseness. But if the native Heat be alter'd from its just Temperament, the Sensation is perverted, and the Heat of such Substances, being excited by an internal Impulse of the sensitive Faculty, begets its own Pain; but Pains proceed from an Increase or Luxuriance of Nature.

The *Arthritis* makes its Attacks after different Manners, according to the Nature of the Joint. Sometimes it seizes upon the Hips, and often leaves a Lameness behind it; but is more favourable to the rest of the Members, and spares the smaller ones, as the Feet and Hand. For if it fixes on a large Member, which has Room to entertain it, it does not transgress the Bounds of that Limb; but if it begins with a small Part, it makes its Entrance in a mild and unexpected manner. In the *Sciatica* it begins with the hinder Part of the Thigh, the Ham, or the Tibia; at other times the Pain seizes upon the Acetabulum of the Os Femoris, and then makes an Attack upon the Buttocks or Loins, and seems to be any thing rather than a *Sciatica*. In the Joints it begins its Course in the following manner: First, the great Toe is seized with a Pain; after that, the fore Part of the Heel, on which we lay most Stress; then the Cavity near the same Part, and last of all the Ankle-bone swells. The Patients ascribe their Illness to wrong Causes; some lay the Fault on their new Shoes, others on a long Walk; one imputes it to a Stroke, another to a Tread: None thinks the Cause to be internal, nor will the Patients believe those who are so wise as to tell them the Truth. For this Reason the Distemper becomes incurable, because it is not opposed by a Physician in the Beginning, when it was in its weakest State; but when it has acquired Strength with Time, all the Care and Thought spent about it are thrown away. Some then are letter'd with the Gout in their Feet during Life; in others it extends itself through the whole Compass of the Body; but for the most part it rushes from the Feet upon the Hands; for the Difference is not much, whether the Disease be in the Hands or the Feet, both these Parts being of the same Nature, slender and void of Flesh, most exposed to the outward Cold, and most remote from the internal Heat. Hence it ascends to the Elbow and Knee, and seizes on the Acetabula of the Os Femoris, where altering its Course, and winding about, it makes a Transition to the Muscles of the Back and Thorax. The Disorder spreads at an incredible rate, takes Possession of the Vertebrae of the Neck and Spine, and fixes itself on the Extremity of the Os Sacrum; and though all these Parts labour under one common Disease, each Part has its peculiar Pain. To proceed, the Tendons, Glands, and Muscles, suffer all together under Pain and Tension; the Muscles of the Jaws, and of the Temples, and afterwards those of the Kidneys and Bladder; and, what is most of all to be admired, the very Nostrils, Ears, and Lips, are affected*, for Nerves and Muscles are found in every Part.

A certain Person was afflicted with a Pain of the Sutures of the Head, and being ignorant of the Parts affected, described the Figures of the Sutures, as the oblique, strait, and transverse Sutures, on the fore and hinder Part of the Head, complaining of a dull Pain which had fix'd itself in the Bones; for the Disease prey'd as much upon every Closure of the Bones, as upon a Joint of the Foot or Hand. The Joints are also beset with Callosities, which at first resemble an Abscess; but growing

* *M. Petit* here takes Occasion to profess his Wonder, how *Aretæus*, so exact and masterly in his Descriptions, should overlook what *Ætius* after him observed, which was, that in the Extremity of the Disease the Iris is sometimes affected.

more and more condensed, and the humid Matter being concreted, Inflexion becomes painful. At last white, solid Substances, or Tophi, are formed, and small Tubercles, like Pimples in the Face, and sometimes bigger, overspread the Part. The Humour itself is white, thick, and of a Substance like Hail; and indeed the Nature of the Disease is to diffuse a Coldness like that of Hail over the Body. To some this Distemper seems to consist in something different from Heat or Cold, for we receive Pleasure sometimes from one, and sometimes from the other; but I am of Opinion, that the Disease is one in Essence, and has one Cause, that is, innate Cold. But if it should increase very fast, and there appear all the Signs of Heat, there is Need of Refrigeration, in order to mitigate and repress the Violence of this, which they call the hot Species of *Arthritis*. But if the internal Pain of the Nerves continues, and the Joint be cold, without any Swelling, the Disease may be said to be of the cold Kind, for which heating Medicines are required for restoring Heat to the Part. And for the most part such Medicines as are endued with a great deal of Acrimony are necessary to be used, which, by their stimulating Warmth, may raise the collapsed Parts into a Tumor, and draw the internal Heat to the Superficies; after which Refrigerants may be serviceable, as appears from considering that the same Treatment does not always agree with the same Patients; for what is beneficial at one time, proves hurtful at another; but, to say all in a Word, Heat is necessary in the Beginning, and Cold at the End. The *Podagra* is seldom perpetual; sometimes it takes its Leave of the Patient for a long time together, because it happens to be rarely'd. A gouty Person at the Olympic Games, on a Remission of his Fit, won the Prize at a Foot-race.

Men are more subject to this Distemper than Women, but endure it better; on the contrary, Women are not so frequently afflicted with it as Men, but more severely. For whatever Evils we submit to from Necessity, their strange and unfamiliar Form increases the Calamity. The Age which lies most obnoxious to the *Arthritis* is after five-and-thirty; but it may be contracted sooner or later, according to the Constitution, and way of Living. The Pains indeed are great, but the Symptoms which accompany them are more to be dreaded; such are, a Lipothymy at being touched, Inability to move, Loss of Appetite, Thirst, and want of Sleep. If the Patients recover, just as if they had escaped from Death, they lead a remiss Life, becoming intemperate, open, merry, bountiful, and luxurious in Diet; and, as if they were sure to escape from Death once more, enjoy the present Life with all manner of Freedom. The *Podagra* often degenerates into a Dropsy, and sometimes into an *Asthma*, in which Cases Death is unavoidable. *Arctæus* περί ἀρθ. καὶ σπυ. καὶ γαστ. παθ. Lib. 2. Cap. 12.

* * * Food, and Radishes often, after which recourse must be had to Hellebore. The Diet in such Cases must be such as is commonly preferib'd in other chronic Disorders; and, next to Diet, Unctions, and cold Bathing in Sea-water, are the most usual Remedies for all gouty Patients. Hellebore is indeed a noble Medicine in the first Attacks of the Gout; but if the Disease be grown inveterate, and descend by hereditary Succession from the Parents, it accompanies the Patient to the Grave.

The following Method is advisable under a Fit of the Gout: Let the affected Part be wrapped in Sheeps greasy Wool, and embrocated with Wine and Oil of Roses. Some have received Benefit from the Application of a Sponge dipt in Oxycrate. After these let a Cataplasin be made of Bread, and Refrigerants, as Gouids, Pompions, the small Gourd, Plantain, and Rose-leaves. The Herb *Sideritis* is also a Lenitive, used with Bread, Moss, Comfrey-roots, the Herb Cinquefoil, and Horehound with fine slender Leaves, the Decoction of which drank mitigates Pain; and the Herb, with Crums of Bread and Barley-flower, makes a Cataplasin. Also that Part of a Citron which is not eatable, together with Polenta, is an excellent Remedy; and so are dry Figs and Almonds, with Meal of one sort or other. These Remedies are of the Class of Refrigerants; and some of these have been found to relieve in particular Cases, and the same has also sometimes been effectual in others.

Others require heating Medicines, and among these the same does Good to different Persons, on a different Account. The following is commonly esteemed as an excellent Lenitive: Feed a Goat with Iris, as much as it will eat; and after allowing a sufficient Time for Digestion, kill the Goat, and let the Patient put his Feet into its Belly amongst the Dung. There are a thousand Remedies for the Gout; for this Distemper puts every one who has the Misfortune to labour under it upon being his own Physician. *Arctæus* περί θυσ. καὶ γαστ. παθ. Lib. 2. Cap. 12.

As to the Theory of *Arctæus*, it is much on a Level with those of later Date.

As *Arctæus* is imperfect with respect to the Cure, I shall give the Methods of the Antients

From COSMIUS AURELIANUS.

If the Patient is collive, a simple Clyster is to be injected; and when the Disease has arriv'd at its greatest Height, so that the Parts appear tumid and inflated, Scarification is to be used;

and if the Situation of the Parts will admit of it, Cupping Glasses or Leeches are to be apply'd. But Scarification without Cupping is the more gentle of these Methods; for in this Case there is none of that Shattering of the Parts, which is the necessary Consequence of Cupping. The Bites of Leeches are also accompany'd with such a Degree of Pain, that a simple Scarification is still more tolerable. Vaporation with Sponges is also to be used; and Fomentation with warm Water, or warm Water and Oil; or with a Decoction of Fenugreek, Linseed, or Marshmallows. A lenitive Cataplasin is also now to be used, though before it was highly improper; because Parts that are swelling, ought not to be loaded and encumbered with any Weight. For this Purpose then we are to use Bread thoroughly softened, either alone, or mixed with the boiled Roots of Comfrey, which the *Greeks* call σόμβουρον, or those of Marshmallows, or such other things as we approve of for Vaporation. When the Disease is evidently and indisputably on the Decline, we are to prescribe Bathings, Variety of Foods, and Water for the Patients Drink; and in order to allay the Pain caused by the Distemper, we are to use Cerats made up with sweet Oil, or *Cyprian* Oil, or that Medicine prepared of Fat, which the *Greeks* call σιτὰ σιτάν, then a Malagma of *Dyachylon*, or *Mnaseum*, or what is commonly call'd *Diateleos*, or *Dioxyleum*, or *Diathalassellum*. The Patients Body is by little and little to be strengthened by walking in easy Shoes; he is at the same time carefully to guard against every thing that may hurt him, and all Excesses, especially in Wine, Venery, and every thing that has a Tendency to bring on Indigestion. 'Tis also proper to give Arthritic Patients Wax to mould soft by their Fingers; or those Instruments which the *Gymnastics* called *Halteres*, are to be held in their Hands, and mov'd; and these Instruments ought at first to be of Wax, or Wood with a little Lead melted here and there into it; then more weighty Bodies may be given them, according to the Advances of the Cure. And even though the Disease should be long protracted, the above-mentioned Simplicity of Cure is to be observed during the Paroxysms; but in the Intervals, the Body is to be strengthened and recruited: For this Purpose let Gestation, according to the Patients Strength, be used, then walking upon Ground made even with soft Straw, together with *Locifiration*, and Unction of the Body; for in this Case, as well as in other Disorders of an old Date, the want of due and proper Exercise renders the Patients gross and corpulent, by which means the Joints are rack'd, and the unexercised Nerves weakened. Bathings are also to be employed on stated Occasions, and the Patient is to have Variety of Food of a neutral Quality. He is also to use a small Quantity of mild Wine; but that must always be done after his Meals; then a simple or compound *Drapax*, and a *Paraptesis*, or Provocation of Sweat by Fire, the Heat of the Sun, warm Skins, or hot Sea-sand; after these, Sprinklings, which the *Greeks* call σπιντασμα, of Nitre, *Adarce*, and *Euphorbium*. Then Ointments are to be apply'd; and such Medicines as remove Weariness and Pain, call'd by the *Greeks* *Acopa*, composed of Squills, wild Cucumber, as also of *Euphorbium* and *Adarce*. Then a Malagma is to be used of what we call *Diachylon* or *Diaphniden*, or *Diadurce*, or a Lixivium of *Diaphlaste*, or any thing else of a like Nature. The Rubification of the Skin, by the *Greeks* call'd *συνρυμός*, is also to be procured by Applications of Mustard. He is also to be directed what the *Greeks* call *Drimyphagia*, or the Use of acrid Substances, and the Regimen of the *Metasyneritic Cycle*; as also Vomits of emetic Roots, and Hellebore, and Bathings, such as are prescribed for those who labour under *Sciaticas*. Fomentations are also to be used made of Decoctions of Mugwort, or warm Sea-water. Then the Patient is to use Swimming, either in warm or cold Water. The Use of natural Waters is also proper both of the hot and cold Kind, such as those of the *Tyber*, and *Caillian* Lake in *Italy*. The Use of all the above-mentioned Remedies is to be continued; for they will either produce a perfect Cure, or, which is next to it, render the Return of the Paroxysms less frequent.

Some of the Antients prescribed Medicines in this Disease to be drank for a Year, such as that they call'd *Diacentaurion* and *Diascordeon*. These were to be used for a complete Year running, by those in whom the Distemper was not of long Standing, that is, if they had not contracted it above five Years before the Use of this Course, which they did not approve of, till the Patient's Body was disposed by proper Evacuations for entering upon it. If the Course was not persilled in for the Year running, yet it was to be followed for the Number of Days of which a Year consists, though considerable Intervals should happen between them. But in my Opinion, according to the Advice of *Soranus*, a long-protracted Course of taking Medicines is to be dreaded in its Consequences, since of course the ordinary and most salutary Foods to which the Patient was formerly accustomed, cannot be used by him. Thus in some of the Antients we find Accounts of some Patients falling into acute Diseases, by a constant and protracted Use of Medicines; of others who have died of Apoplexies, Pleurisies, and Peripneumonies; and that others, by the same means, have been afflicted

afflicted with a continual Difficulty of Breathing, which the *Greeks* call *ἀσπνοια*. They who affirm, that they have found Advantage from such a Course, do not advert, that the Benefit they received was the Result of Digestion being preserved by means of a good and slender Regimen; for the Excess of peccant Humours abating, and Health continuing, some have been afraid to give over their Course, and have been so much prejudiced in its Favour, that they could not possibly believe, that any other Means could contribute to their Health and Preservation. Some advise burning the gouty Protuberances, and Parts most immediately affected. But I disapprove of this Practice, since it has a Tendency to draw the adjacent Parts into Consent, and by that means excite Tumors. Some also approve of trying different Means, and prescribe Ointments and Cataplasms of widely differing Qualities, till they light on the very Medicine by means of which the Patient is relieved; for some things seem in their Natures adapted to some Patients, and others to others; and the Use of different Medicines will in different Patients produce the same Effect; that is, the Mitigation of Pain. Remedies of quite contrary Intentions have also been order'd in this Case; for Instance, laxative Medicines in Conjunction with Astringents and Restorers, such as the Malagma call'd *Mnaseum*, or Diachylon. Some, on the contrary, have order'd the more violent Astringents alone, such as *Dyateon* (*ὑάτιον* in *Ætius*) *Cyzicenum*, and the *Emplastrum Erassistratum*; as also a Cataplasm of the Powder of *Panic* and *Lintseed*; and of wild Cabbage or Groundsel, or Water-sea-green, or Mandrake, or Henbane, or Lentils, or the Heart of a Citron, or Pompion, or Origanum, or Thyme, or Lupins, or Purslain, or Beets, or Pomgranates with green Leaves; or its Blossom, which the *Latins* call *Ampullagium*, boil'd with Vinegar; or wild Rue with Vinegar alone, or with common *Alica*; or the Sediment of Vinegar with Smallage; or the Leaves of the Vine with common *Polenta*; or fine Meal of the bitter Vetch; or of Beans, Barley, Darnel, or Lupins, with the Dregs of Wine or Vinegar; or Figs boil'd with Water and Wine, and beat into the Consistence of Honey; then separating the harder Parts, they order the Remainder to be again boiled. As also of the tender Stalks of Poppy, which the *Greeks* call *κασία*; or their Leaves, and Quinces and Pomgranates boil'd in Wine, and their Pulps with Honey; or the Root of Henbane with Storax; or Roots and Leaves of Hyacinth and Horehound; as also Lime boil'd in Honey; and Opium, Storax, and bitter Almonds thoroughly boil'd in *Cyprian Oil* and Vinegar: With these they order the Parts affected to be anointed. Thus, without any Order, and, in a manner, repugnant to the Art of Physic, they order things the most directly opposite, and pass from one Medicine to another, till they light on such as are proper for the Disease; since different Patients are reliev'd by different Means. This Method of trying Experiments is, by the *Greeks* called *ἡσυχαστικὴ αἰσῆς*, which does not adhere to certain stated Medicines for the Cure of Diseases; but makes Trial of Numbers till the Intention is answer'd. Besides, it sometimes happens, that the Paroxysms do not seize the Patient for a long time, and of their own accord become gradually more gentle, and, the Disease declining apace, the Patient is perfectly cured. But those Medicines which are thought proper in the declining State of the Disease, are found hurtful in its Beginning or first Stage, since they are not applied at a seasonable Time; they therefore think, that some are relieved by one Set of Medicines, and others by another. But we ought to be very careful to adjust and proportion Medicines to the Stages of the Disease, and the State of the Patient; for, in the Beginnings of the Distemper, moderate Astringents are proper; but in its Increase and Height, mitigating and laxative Medicines are to be used. In the Declension, Emollients are proper. In the Intervals, corroborating and recruiting Medicines take Place. But cold and repellent Medicines, call'd by the *Greeks* *ἀπορροητικὰ*, are proper even when the Disorder is attended with an Erysipelas. But some affirm, that even in this Case Coolers are serviceable, as they moderate the Inflammation; for their Application, say they, is agreeable to those burning Heats which arise from Tumors, and allays them just as cold Water poured into hot Water reduces it to a mild and tepid Heat. But this Conclusion is plainly false, since 'tis what the *Greeks* call *Sophisma*; for if their Reasoning was good, it would follow, that cold Substances were proper for all Tumors. We are therefore to adjust Medicines to the Natures of Disorders, and their several Stages. Some in gouty Cases commend an *Acopum* of Toads. Some anoint their Feet with the Fat of a Sea-calf, and wear Shoes made of its Skin. Others again boil this Animal alive, and others a Wolf, and affirm that anointing with the Oil, produced, is of singular Efficacy; for many foolish Medicines are believed by credulous People to be effectual, because they have been apply'd at a Time when the Disease was not fixed, but beginning with a gentle Attack on the Body, and often changing its Appearances.

Many have, in like manner, approv'd of Vomits exhibited after Meals twice or thrice every Month, imagining that by

that means the peccant Matter was hinder'd from reaching the Joints, and Indigestion prevented; not adverting that the Patient suffer'd still more and more, since by this means the Gums become putrid, the Teeth are render'd loose, the Eyes distorted and weaken'd, the whole Head fill'd, the Stomach violently affected, and all the Nerves drawn into Consent. A spare and slender Diet is therefore more commendable in this Case, and the Foundation of the Cure is to be laid in Abstinence.

Many Physical Writers in this Distemper recommend the more acrid Purgatives, and such Medicines as promote Urine, which they call *Diuretic*. But we must carefully guard against Irritations of the Stomach, which are very readily produced by Variety of Medicines; we must also take care not to irritate the Bladder, which is of a very nervous, and consequently a very sensible Nature; and when it is affected, by its nervous Quality it conveys Pain and Uneasiness to all the Parts of the Body: But, not to enumerate all the Errors of the Antients, I think what they have written concerning the *Gout* vain, prolix, and frivolous; and that the several Steps of Cure above-mention'd are sufficient; but as I have hitherto made no mention of the several Authors from whom they were taken, I shall here subjoin an Account of them. The first then is *Diocles* in the Books he wrote concerning Diseases, their Causes and Cures. *Praxagoras* in his third Book of Diseases. *Erassistratus* in the Book he wrote concerning the *Gout*, in which, tho' he forbids Purgatives call'd *Cathartics*, yet he promised a Malagma to King *Ptolemy*, a Receipt of which he has not left; tho' some People mention their having seen this Medicine of *Erassistratus*. Many also of the Followers of *Herophilus*, and *Asclepiades* in his Books wrote to *Erassistratus*, and *Heracides Tarentinus*; and *Themison* in his second Book of chronical Disease, who sometimes talks like one of the Methodic Sect, and sometimes not; for he recommends Phlebotomy in the Feet, does not account for any Part of his Practice, and confounds the Qualities of Cataplasms, not distinguishing between Astringents and Laxatives: But what occasion have we to confute his Sentiment in this Particular, since 'tis as well known, that Phlebotomy in the Feet occasions a Derivation of Humours to the Parts affected, as 'tis, that excessive Drinking weakens the Nerves? *Theffalus*, however, in his second Book, which he calls *Regularis*, has laid down the Cure of the *Gout* imperfectly indeed, but in a manner consistent enough with the Principles of the Methodic Sect. *Carl. Aurl. Chron. Lib. 5. Cap. 3.*

From SYDENHAM.

The *Gout* generally attacks those aged Persons who have spent most Part of their Lives in Ease, Voluptuousness, High-living, and too free an Use of Wine, and other spirituous Liquors, and at length, on account of the common Inability to Motion in old Age, entirely left off those Exercises, which young Persons generally use. And further, such as are liable to this Disease have large Heads, and are generally of a plethoric, moist, and lax Habit of Body, and withal of a strong and vigorous Constitution, and possessed of the best Stamina Vitæ.

The *Gout*, however, not only seizes the gross and corpulent, but sometimes, tho' less frequently, affects lean and slender People; neither does it always wait till old Age comes, but sometimes attacks such as are in the Prime of Life, when they have received the Seeds of it from gouty Parents, or have otherwise occasioned it by an over-early Use of Venery, or the leaving off such Exercises as they formerly indulged to Excess; and besides have had a voracious Appetite, and used spirituous Liquors immoderately, and afterwards quitted them of a sudden for those of a thin and cooling kind.

When it seizes a Person far advanced in Years, for the first time, it never has such stated Periods, nor proves so violent, as when it attacks one that is younger, because, he generally perishes before the Disease accompany'd with its natural Symptoms, comes to its Height; and because the native Heat and Vigour of the Body being diminish'd, the Distemper cannot be so constantly and effectually propell'd and fix'd upon the Joints. But when it comes on sooner, tho' it may not yet fix on one Part, nor prove so severe, but affect the Patient occasionally, keeping no certain Period, giving only a little Pain for a few Days, and coming on and going off without any Regularity; yet, however, in time it takes full Possession, and becomes regular both with respect to the Time of its coming, and the Duration of the Fit; so that it is more severe in its Progress than in its Beginning.

I shall first treat of the *Regular Gouts*, and next of the *Irregular*; whether occasioned by an unadvised Use of improper Remedies, or the Weakness of the Subject.

The *Gout*, when *regular*, generally seizes the Patient in the following manner. It comes on a sudden towards the Close of *January*, or the Beginning of *February*, giving scarce any Sign of its Approach, except that the Patient is afflicted for some Weeks previous thereto, with a bad Digestion, Crudities of the

Stomach, and much Flatulency and Heaviness, that gradually increase till the Fit at last commences; which, however, is preceded for a few Days by a Numbness of the Thighs, and a sort of Descent of Flatulencies thro' the fleshy Parts thereof, along with convulsive Motions; and the Day preceding the Fit, the Appetite is sharp, but preternatural. The Patient goes to Bed, and sleeps quietly till about Two in the Morning, when He is awakened by a Pain which usually seizes the great Toe, but sometimes the Heel, the Calf of the Leg, or the Ankle. The Pain resembles that of a dislocated Bone, and is attended with a Sensation, as if warm Water were poured upon the Membranes of the Part affected; and these Symptoms are immediately succeeded by a Chillness, Shivering, and a slight Fever. The Chillness and Shivering abate in proportion as the Pain increases, which is mild in the Beginning, but grows gradually more violent every Hour, and comes to its Height towards Evening, adapting itself to the numerous Bones of the Tarsus and Metatarsus, the Ligaments whereof it affects; sometimes resembling a Tension or Laceration of those Ligaments, sometimes the Gnawing of a Dog, and sometimes a Weight and Constriction of the Membranes of the Parts affected, which becomes so exquisitely painful, as not to endure the Weight of the Cloaths, nor the shaking of the Room from walking briskly therein. And hence the Night is not only passed in Pain, but likewise with a restless Removal of the Part affected from one Place to another, and a continual Change of its Posture: Nor does the perpetual Restlessness of the whole Body, which always accompanies the Fit, and especially in the Beginning, fall short of the Agitation and Pain of the *gouty* Member. Hence numberless fruitless Endeavours are used to ease the Pain, by continually changing the Situation of the Body, and of the Part affected, which notwithstanding abates not till two or three o'Clock in the Morning, that is, twenty-four Hours from the first Approach of the Fit; when the Patient is suddenly relieved by means of a moderate Digestion, and some Dissipation of the peccant Matter, tho' he erroneously judges the Ease to proceed from the last Position of the Part affected. And, being now in a breathing Sweat, he falls asleep, and upon waking finds the Pain much abated, and the Part affected to be then swelled; whereas before only a remarkable Swelling of the Veins thereof appeared, as is usual in all *gouty* Paroxysms. The next Day, and perhaps two or three Days afterwards, if the *gouty* Matter be copious, the Part affected will be somewhat pained, and the Pain will increase towards the Evening, and remit about Break of Day. In a few Days it seizes the other Foot in the same manner; and if the Pain be violent in this, and that which was first seized be quite easy, the Weakness thereof soon vanishes, and it becomes as strong and easy as if it had never been indisposed: Nevertheless, the Gout affects the Foot last seized, as it did the former, both with respect to the Vehemence and Duration of the Pain: And sometimes, when the peccant Matter in the Beginning of the Fit is too copious for one Foot to contain, it affects both at the same time with equal Violence, but it generally attacks the Feet successively, as above remarked. When it has seized both Feet, the following Fits are irregular, both with respect to the Time of Seizure, and their Continuance; but the Pain always increases in the Evening, and remits in the Morning; and what we usually call a Fit of the *Gout*, which goes off sooner or later, according to the Age of the Patient, is made up of a Number of these smaller Paroxysms. For when this Disease lasts two or three Months, it is not to be esteemed one continued Fit, but rather a Series or Assemblage of small Fits, the last of which proves milder and shorter, till the peccant Matter being at length entirely expelled, the Patient recovers his former Health; which in strong Constitutions, and such as seldom have the *Gout*, often happens in the Space of fourteen Days; and in the Aged, and those that have frequent Returns of the Disease, in two Months; but in such as are more debilitated, either with Age, or the long Duration of the Distemper, it does not go off till Summer advances, which drives it away. During the first fourteen Days the Urine is high-colour'd, and, after Separation or Standing, lets fall a red, gravelly Sediment; and not above a third Part of the Liquids taken in is voided by Urine, and the Body is generally colicive during this Time. The Fit is accompanied throughout with Loss of Appetite, a Chillness of the whole Body towards the Evening, and a Heaviness and Uneasiness even of those Parts that are not affected by the Disease. When the Fit is going off, a violent Itching seizes the Foot, especially between the Toes, whence the Skin peels off, as if the Patient had taken Poison. The Disease being over, the Appetite and Strength return sooner or later, according as the immediately preceding Fit hath been more or less severe; and, in Consequence of this, the following Fit comes on in a shorter or longer Space of Time; for, if the last Fit proved very violent, the next will not attack the Patient till the same Season of the Year returns again.

In this manner does the regular *Gout*, accompany'd with its genuine and proper Symptoms, appear; but when it is exasperated, either by wrong Management, or long Continuance,

so that the Substance of the Body is in a manner changed into Supplies for the Disease, and Nature unable to expel it according to her usual Way, the Symptoms differ considerably from those just described: For, whereas the Pain hitherto only affected the Feet, (which are the genuine Seat of the morbid Matter, which, whenever it attacks any other Part, clearly proves, either that the Course of the Disease is obstructed, or the Strength gradually impair'd) it now seizes the Hands, Wrists, Elbows, Knees, and other Parts, no less severely than it did the Feet before: For sometimes it renders one or more of the Fingers crooked and motionless by Degrees, and at length forms stony Concretions in the Ligaments of the Joints, which destroying both the Scarf-skin and Skin of the Joints, Stones not unlike Chalk or Crabs-eyes appear, and may be pick'd out with a Needle. Sometimes the morbid Matter is thrown upon the Elbows, and occasions a whitish Swelling, almost as large as an Egg, which becomes gradually inflamed and red. Sometimes it affects the Thigh, which seems to sustain a great Weight, yet without much Pain; but thence gaining the Knee, it attacks that Part more violently, depriving it of Motion, so as to nail it, as it were, to one Place in the Bed. And when it is necessary to move the Patient, either on account of the Restlessness of the whole Body, which is so frequent in this Disease, or some other urgent Occasion, it ought to be done with great Caution, as the least contrary Motion or Shock may perhaps give Pain, which is only tolerable for this Reason, because it soon goes off. And, indeed, this Necessity of moving the Patient with such Care and Tenderness by the Assistants, is no inconsiderable Part of the Evils which attend the *Gout*; for an Excess of Pain does not last during the whole Paroxysm, in case the Part affected be kept perfectly without Motion.

As the *Gout* heretofore did not usually come on till the Decline of Winter, and went off in two or three Months, it now continues all the Year, excepting two or three of the warmest Summer Months. And it is further to be observed, that as the cardinal or general Fit continues longer now than it did heretofore, so likewise those particular Fits, of which the general one is made up, rage a longer time; for whereas one of these did not last above a Day or two before, it now, where-ever it fixes, does not go off till the fourteenth Day, especially if the Feet or Knees be affected thereby. To this may be added, that the Patient on the first or second Day after its coming, besides the Pain, is afflicted with Sickiness, and a total Loss of Appetite.

In the last Place, before the Disease came to such a Height, the Patient not only enjoy'd longer Intervals between the Fits, but likewise had no Pain in the Limbs, and the other Parts of the Body, all the bodily Functions being duly performed; whereas now his Limbs, during the Intermision of the Disease, are so contracted and disabled, that tho' he can stand, and perhaps walk a little, yet it is very slowly, with great Trouble, and so lamely, that it scarcely deserves the Name of walking; and if he endeavours to walk beyond his Strength, in order to recover the Use of his Feet, the stronger they grow, and the less liable they are to Pain upon this Account, so much more does the morbid Matter, not wholly dissipated during this Interval, threaten the Bowels, to the great Danger of the Patient, as it cannot be so freely thrown upon the Feet, which, in this State of the Disease, are never quite free from Pain, but always have an uneasy Sensation in some Degree.

Moreover, the Patient is afflicted with several other Symptoms; as a Pain in the Hæmorrhoidal Veins, nidorous Eructations resembling the Taste of the Aliment last taken in, and corrupted in the Stomach; this happens always after eating any thing of difficult Digestion, or even no more than is proper for a healthy Person: Add to these a Loss of Appetite, and a Debility of the whole Body, for want of Spirits; which render his Life melancholy and uncomfortable. The Urine, which was before high-colour'd, especially in the Fits, and voided in a small Quantity, now resembles that which is evacuated in a Diabetes both in Colour and Quantity, and the Back and other Parts itch much towards Bed-time.

It also happens, when the Disease is grown inveterate, that after Yawning, especially in the Morning, the Ligaments of the Bones of the Metatarsus are violently convulsed, and seem to be forcibly press'd by a strong Hand. And sometimes, tho' no Yawning has preceded, when the Patient is composing himself to Sleep, he feels a sudden Pain, as if the Metatarsus were breaking in Pieces by a Blow with a Stick, so that he wakes crying out with Pain. The Tendons of the Muscles of the Tibia are sometimes seized with so sharp and violent a Convulsion or Cramp, that if the Pain it occasions were to last only a short Time, it would overcome all human Patience.

But after many racking Pains, the following Paroxysms become less painful, as an Earnest of the Delivery which approaching Death is about to give, Nature being in part oppressed by the Quantity of the morbid Matter, and in part by old Age, so as not to be able to propel it constantly and vigorously to the Extremities; but instead of the usual external Pain, a certain Sickiness, a Pain in the Belly, a spontaneous Lassitude, and some-

sometimes a Tendency to a Diarrhœa, succeed. When these Symptoms are violent, they ease the Pain of the Limbs, which returns upon their going off; and the Paroxysms are much prolonged by this alternate Succession of Pain and Sicknefs. For it is to be observed, that when the Disease has continued several Years, the Pain diminishes gradually every Fit, and the Patient at last is worn out rather by the Sicknefs than the Pain, which in these Fits, tho' it be longer, is not near so violent as that which he usually suffer'd, when his Strength was less impaired. But nevertheless this Violence of the Disease was ordinarily recompens'd by longer Intervals between the Fits, and the good State of Health the Patient enjoy'd during the Intermission. For Pain in this Disease is the disagreeable Remedy of Nature; and the more violent it proves, the sooner the Fit terminates, and the longer and more perfect is the Intermission; and so on the contrary.

But besides the above-mention'd Symptoms, as the Pain, Lameness, Inability to Motion of the Parts affected, the Sicknefs, and other Symptoms above enumerated, the *Gout* breeds the Stone in the Kidneys in many Subjects, either because the Patient is obliged to lie long on his Back, or because the secretory Organs have ceased performing their proper Functions, or else because the Stone is form'd from a Part of the same morbid Matter; which, however, I do not pretend to determine. But from what Cause soever this Disease proceeds, the Patient is sometimes at a Loss to know whether the Stone or the *Gout* be most severe. And sometimes it happens, that a Stone in one or both of the Ureters, intercepting the Passage of the Urine to the Bladder, destroys him without waiting for the slow Advances of the *Gout*.

The Patient is not only reduced to this helpless Condition, but, to complete his Misery, his Mind, during the Fit, sympathizes with his Body, so that 'tis not easy to determine which of the two is most afflicted. For every Paroxysm may be as justly denominated a Fit of Anger, as a Fit of the *Gout*; the rational Faculties being so enervated by the Weakness of the Body, as to be disordered upon every trifling Occasion; whence the Patient becomes as troublesome to others, as he is to himself. Moreover he is equally subject to the rest of the Passions, as Fear, Anxiety, and the like, which also torment him till the Declension of the Disease, when the Mind is restored to Health along with the Body, having recovered its former Tranquillity.

To conclude, the Viscera in time are so much injured, from the Stagnation of the morbid Matter therein, that the Organs of Secretion no longer perform their Functions; whence the Blood, overcharged with vitiated Humours, stagnates, and the *gouty* Matter ceases to be thrown upon the Extremities as formerly; so that at last the Patient is so happy, as to be freed from a most painful and burdensome Life, by Death, the ultimate Remedy.

But what may be a Consolation to me, and other *gouty* Persons of moderate Fortunes, and slender Abilities, is, that Kings, Princes, Generals, Admirals, Philosophers, and several other great Men, have thus lived and died. In short, it may in a more especial manner be affirmed of this Disease, that it destroys more rich than poor Persons, and more wise Men than Fools; which seems to demonstrate the Justice and strict Impartiality of Providence, who abundantly supplies those that want some of the Conveniences of Life, with other Advantages, and tempers his Profusion to others with an equal Mixture of Evil; so that it appears to be universally and absolutely decreed, that no Man shall enjoy unmixed Happiness or Misery, but experience both; and this Mixture of Good and Evil, so adapted to our Weakness, and perishable Condition, is, perhaps, admirably suited to our present State.

The *Gout* seldom infects Women, except they are far advanced in Years, and of a masculine Habit of Body; for such as are lean and emaciated, who in their Youth, or riper Age, are seized with Symptoms not unlike the *Gout*, owe them to hysteric Disorders, or some preceding Rheumatism, the morbid Matter whereof was not sufficiently carried off in the Beginning. Nor have I hitherto found Children, or People not yet arrived at Maturity, affected with the true *Gout*. Yet I have known some who have felt slight Touches of it before Manhood; but these were such as were begot whilst their Father actually laboured under the *Gout*; and let this suffice for the History of this Disease.

Upon a thorough Attention to the various Symptoms of this Disease, I judge it to proceed from an universally depraved Concoction; for such as are subject to it, are either worn out by old Age, or have contracted prematurely the Infirmities of it by Debauchery, and hence labour under an universal Defect of Animal Spirits, wasted by the immoderate Exercise of the vigorous Functions in the Heat of Youth: For Instance, by a too early, and excessive Use of Venery; by an extravagant and incessant Pursuit after Pleasures, and the like; to which must be added, the leaving off such bodily Exercises on a sudden as they had formerly used, (whether through Age or Indolence)

which served to invigorate the Blood, and strengthen the Tone of the Solids; whence the Strength decays, and the Concoctions are no longer duly performed; but on the contrary, the excrementitious Part of the Juices, which was formerly expelled by means of such Exercises, is accumulated in the Vessels in order to nourish the Disease. And sometimes it has happened, that the Disease hath been increased by a long-continued Application to Study and Meditation, whereby the finer and more volatile Spirits are diverted from their proper Function of assisting the Concoctions.

Again, such as are subject to the *Gout*, besides having a voracious Appetite in general, principally covet Aliment that is difficult to digest; of which, when they have eaten as plentifully as they usually did when they used Exercise, their Organs are unequal to the Task of digesting it properly. But this way of Living does not occasion the *Gout* so frequently as the excessive Use of Wine, which destroys the Ferments designed for various Concoctions, hurts the Concoctions themselves, and overcomes and dissipates the natural Spirits, by reason of the Abundance of adventitious Vapours. Now the Spirits, which are the Instruments of Concoction, being weakened, and the Blood at the same time overburdened with Juices, all the Concoctions must necessarily be depraved, as all the Viscera are so oppress'd. Hence the Spirits, that have long been in a declining State, are now quite exhausted. For if this Disease proceeded only from a Debility of the Spirits, it would equally affect Children, Women, and People debilitated by a tedious Illness; whereas the strongest and most robust Constitutions are principally subject to it, but not before Abundance of Humours are collected in the Body, through the Decay and Waste of the natural Heat and Spirits, which in Conjunction pervert the vitiated Concoctions.

Again, as each of the Causes we have enumerated promotes Indigestion, so most of them contribute, in some measure, to introduce a Laxity of the Habit, and Muscles of the Body, which makes way for the Reception of crude and indigested Juices, as often as they are thrown upon the external Parts. For when, by lying long in the Blood, they are increased in Quantity, and have put on a morbid Quality, they at last acquire a Heat sufficient for Putrefaction; and, Nature being then no longer able to regulate them, they shew themselves in the Form of a Disease, and fall upon the Joints, and, by their Heat and Acrimony, occasion exquisite Pains in the Ligaments and Membranes that cover the Bones; which, being weakened and relaxed, either by Age or Intemperance, easily admit them. But this Translation of the Humours occasioning the *Gout*, and forming a *gouty* Fit, happens sooner or later, according as these Humours are put in Motion by adequate Causes.

As to the Cure, in treating of which I shall first specify the things to be avoided, if regard be had to the Humours, and the Indigestion occasioning them, it should seem at first View, that the curative Indications should principally tend, first, to evacuate the Humours already generated; and, secondly, to strengthen the Concoction or digestive Powers, so as to prevent the Accumulation of other Humours; these being the usual Indications to be answered in most other Humoral Diseases. But nevertheless, in the *Gout*, Nature seems to have this singular Prerogative, to expel the peccant Matter according to its own Method, and deposit it upon the Joints, there to be carried off by insensible Perspiration. Now there are only three ways proposed of expelling the morbid Matter of the *Gout*, which are Bleeding, Purging, and Sweating; but none of these will ever answer the End.

Though Bleeding seems to bid fair for evacuating the Humours, as well those which are upon the point of falling on the Extremities, as those already in the Joints, yet it manifestly interferes with that Indication, which the antecedent Cause, that is, Indigestion, arising from a Depravity or Defect of Spirits, demands, which Bleeding further weakens and diminishes. For this Reason, Bleeding is not to be practised either by way of preventing an approaching, or easing a present Fit, especially in those advanced in Years; for though the Blood which is taken away, generally resembles Pleuritic or Rheumatic Blood; yet Bleeding is found to do as much Mischief in this Disease, as it does Good in those. And Bleeding in the Intervals, though long after the Paroxysm, is subject to occasion a fresh Fit by the Agitation of the Blood and Juices, which may continue longer, and be attended with more violent Symptoms than the former; the Vigour of the Blood being thus impaired, by means whereof the morbid Matter should be powerfully and constantly expelled. This Inconvenience always happens from Bleeding in the Beginning of the Fit; and if it be used immediately after the Fit, there is great Danger, lest Nature, on account of the present Debility of the Blood, which has lost much of its Vigour by the preceding Fit, should be so far debilitated as to sink into a Dropsy. However, if the Patient be young, and overheated by hard Drinking, a Vein may be opened in the Beginning of the Fit; but if Bleeding be always used in the succeeding Paroxysms, it will soon render the

the *Gout* inveterate, even in Youth, and cause it to spread more universally in a few Years, than it otherwise would have done in many.

With respect to Vomiting and Purging, it must be observed, that as it is a fixed Law of Nature, and interwoven with the Essence of this Disease, that the morbid Matter thereof ought always to be translated to the Joints, Emetics or Cathartics will only invite the *gouty* Matter back into the Blood, which was thrown off by Nature upon the Extremities; and hence what ought to be thrown upon the Joints, fixes, perhaps, on some of the Viscera, and so hazards the Life of the Patient, who was before in no Danger. And this hath often been observed to prove fatal to those who have ordinarily had recourse to Purgatives by way of Prevention, or, which is worse, to ease the Pain in the Fit; for when Nature is prevented from pursuing her usual, safest, and best Method of translating the morbid Matter to the Joints, and the Humours are forced inwards upon the Bowels, then, instead of Pain in the Joints, which is either slight, or none at all, the Patient is afflicted, and almost destroyed, by Sickness at the Stomach, Gripings, Faintings, and a numerous Train of irregular Symptoms.

For my own part, I am abundantly convinced from much Experience, that either lenient, or more powerful Cathartics, of those Sorts which are usually thought to purge the Joints, prove very prejudicial, whether they be used in the Fit to lessen the morbid Matter; or in its Declension, to carry off the Remainder; or in a perfect Intermission, or healthy State, to prevent an approaching Fit. For I have learned at my own Peril, as well as that of others, that Purgatives exhibited at any of these Seasons have, instead of doing Service, hastened the Mischief they were intended to prevent. Purging, therefore, during the Fit, by disturbing Nature when she is employed in separating the *gouty* Matter, and throwing it off upon the Joints, sometimes causes a considerable Disorder in the Spirits, which renders the Fit more violent, and likewise evidently endangers the Life of the Patient. Secondly, Purgatives administered at the End of a Fit, instead of expelling the Remains of the Disease, excite another Fit, as severe as the former; and thus the Patient, deceived by fruitless Hopes, brings those Evils upon himself, which he had escaped, if the Humours had not been exasperated afresh. And this Inconvenience, I myself often experienced, after having had recourse to Medicine to expel what I esteemed the Remains of the Distemper. Thirdly, as to purging at certain times in the Intervals, by way of Prevention, though it must be owned, that there is not so much Danger of occasioning a fresh Fit, as in the Instance just mentioned, the Patient in that Case not being perfectly recovered, yet, even at this Time, it is productive of a Fit, for the Reasons above specified; and though, perhaps, it may not come on immediately, the Disease nevertheless will not go off entirely, by taking any Purgative constantly at proper Intervals; for I have known some *gouty* Persons, who, to recover their Health, not only purged Spring and Autumn, but monthly, and even weekly, and yet not one of them escaped the *Gout*, which afflicted them more severely afterwards, and was accompanied with more violent Symptoms, than if they had totally abstained from Medicine. For tho' such Purging might carry off a Part of the *gouty* Matter, yet as it does not at all contribute to strengthen Concoction, but rather weakens it, and injures Nature afresh, it only strikes at one Cause, and is by no means adequate to the Cure of the Distemper.

To these Observations it must be added, that the same Defect of Spirits which impairs the Concoctions in *gouty* Subjects, renders their nervous System weak and languid, so that the Spirits in general are soon disturbed by any Cause which violently agitates either the Body or Mind, and consequently are very volatile, and easy to be dissipated, as they frequently are in hysteric and hypochondriac Patients. And from this Tendency of the Spirits to irregular Motions it happens, that the *Gout* usually follows the slightest Evacuation. For the Tone of the Parts being destroyed, which the Firmness of the Spirits, so long as they continue strong, preserves unrelaxed and healthy, the peccant Matter moves without Interruption; and hence a Fit immediately breaks out.

But notwithstanding this Method is so very pernicious, yet there have been Empirics, who have acquired a great Character by artfully concealing the Cathartic they used in this Case. For it must be observed, that whilst the Medicine operates, the Patient feels no Pain at all, or but a slight one; and, if a Course of Purgatives can be continued for some Days, without

bringing on a recent Fit, the present Paroxysm will soon go off. But the Patient will suffer greatly afterwards, on account of the Tumult occasioned by this Agitation of the Humours.

Finally, the carrying off the peccant Matter by Sweat is manifestly prejudicial, though in a less Degree, than the above-mentioned Evacuations; for though it does not repel the morbid Matter to the Viscera, but on the contrary propels it into the Habit, it is notwithstanding detrimental for these Reasons:

First, Because, during the Interval of the Fit, it forces the Humours, which are yet crude, and not fitted for a due Separation, upon the Limbs; and thus occasions a Fit before its Time, and in Opposition to Nature.

Secondly, The promoting Sweat in the Fit throws and fixes the *gouty* Matter too powerfully upon the Part affected, at the same time occasioning intolerable Pain; and, if there be a greater Quantity thereof than can be received by the Part affected, it immediately throws it upon some other Parts, and thus raises a violent Ebullition of the Blood and other Juices; and, if the Body abounds considerably with a ferous Matter fit for the Generation of the *Gout*, an Apoplexy is hence to be apprehended.

Hence therefore, it is a very dangerous Practice, both in this and all other Diseases, in which it is customary to extort Sweats by Art, with a View of eliminating the morbid Matter, without waiting till they naturally arise, to force it out too violently, and beyond that Degree of Concoction, which the Humours to be carried off have spontaneously acquired*. The excellent Aphorism of *Hippocrates*, intimating, that *concocted and not crude Humours are to be evacuated*, holds good with respect to Sweating, as well as Purging, as appears manifestly from that Sweat which ordinarily terminates the Paroxysms of Intermit-tents; which, provided it be moderate, and proportioned to the Quantity of febrile Matter, concocted by the preceding Fit, relieves the Patient considerably; but in case it be promoted beyond the Limits prescribed by Nature, by keeping the Patient constantly in Bed, a continued Fever thence arises, and, instead of extinguishing the former Heat, an additional one is excited. So in the *Gout*, the gentle breathing Sweat, that generally comes on spontaneously in the Morning after each of the small Fits, of which, as I have before observed, the Cardinal Fit is compounded, eases the Pain and Restlessness, which tormented the Patient so much during the Night; but on the contrary, if this gentle Moisture, which is naturally of short Duration, be violently forced, and continued longer than the Quantity of the morbid Matter concocted by the preceding Fit requires, the Disease is thereby exasperated. In this therefore, and all other Diseases that I have met with, excepting only the Plague, it is Nature's Province, more than the Physician's, to excite Sweat, as we cannot possibly learn how much Matter is already prepared for such a Separation, and consequently what Method is to be taken in order to promote Sweat.

Since then it evidently appears from what has been delivered, that it is both a fruitless and a pernicious Attempt to endeavour to cure the *Gout* by evacuating Medicines, we are next to inquire what other Purpose the curative Indications are to be directed to answer. And, from a thorough Attention to the Symptoms above enumerated, we learn, that Regard must be had to two Causes principally in the Cure of this Disease.

First, The antecedent or primary Cause, or the Indigestion of the Humours, proceeding from a Defect of the natural Heat and Spirits. Secondly, The immediate Cause, or the Heat and Effervescence of these Humours after the Putrefaction and Acrimony they have acquired by continuing too long in the Body, which is occasioned by the Indigestion above-mentioned. Now these Causes differ so much from one another, that the Medicines which do Service in the one, prove pernicious in the other; and hence it is, that this Disease is so difficult of Cure. For at the same time that we endeavour to cure the Indigestion by warm Medicines, we run the Risk, on the other hand, of increasing the Heat of the Humours; and on the contrary, whilst we strive to mitigate the Heat and Acrimony of the Humour, by a cooling Regimen or Medicines, we bring on Indigestion, the natural Heat being already impaired. But here, by the immediate Cause, I do not only mean that which is actually deposited in the Joints, and forms the present Fit, but that also which still lies concealed in the Blood, and is not yet prepared for Separation. For all the morbid Matter is seldom so entirely expelled by the Fit, how lasting and severe soever it be, as to leave no Remains of it in the Body, after the Fit is

* If *Sydenham* had never written more than this Paragraph, he had merited thereby immortal Honours. For nothing more pernicious can be contrived than to force Sweats by heating Medicines. When the vital Powers have rendered the morbid Matter of any acute Distemper fit for Expulsion, Nature will find a Method of discharging it out of the Habit; and Sweats, if they are necessary, will spontaneously arise, provided all Obstacles are removed. It must be confessed, that Art may assist the vital Powers in attenuating the Mass of Humours, and rendering them fit for a subsequent Extermination. This, however, cannot be done by hot Sudorifics. Warm Remedies, it must be confessed, considered as Cordials, may possibly be of Advantage in the latter End of some acute Cases, as they may rouse the vital Powers, and excite them to Action, when too languid; but the great Abuse of these, which has prevailed to a surprising Degree, renders this Note the more necessary, which does not so much relate to the *Gout*, as to febrile Disorders.

gone off; so that, of course, Regard is to be had to this Cause both in the Fit, and during the Intervals. But as the Expulsion of the immediate Cause is entirely the Business of Nature, and to be perform'd according to her own Method, since nothing in the mean time can be done to cool the hot and acrimonious Humours, without injuring the digestive Powers, unless it be by avoiding a hot Regimen, and Medicines which inflame the Humours; so, doubtless, the chief curative Intention is, after the indigested Humours are removed, to strengthen the digestive Powers, which I shall now treat of; but in such manner, however, that I may, in the Course of this Dissertation, as Occasion offers, also mention those Remedies which tend to mitigate the Heat of the Humours, and correct their Acrimony.

Whatever Remedies, therefore, assist Nature to perform her Functions duly, either by strengthening the Stomach, so that the Aliment may be well digested; or the Blood, that it may sufficiently assimilate the Chyle received into the Mass; or the Solids, so as to enable them the better to change the Juices, design'd for their Nutrition and Growth, into their proper Substance; and lastly, whatever preserves the Secretory Vessels, and the Emunctories, in such a State, that the excrementitious Parts of the whole System may be carried off in due Time and Order; these, and all Medicines of the same Kind, contribute towards answering this Intention, and are properly intitled Digestives, whether they be of the medicinal or dietetic Kind, Exercise, or any other of those Things which are call'd the fix Non-naturals.

Such Medicines, in general, are those which are moderately heating, bitter, or of a mild pungent Taste, inasmuch as they agree well with the Stomach, purify the Blood, and strengthen the other Parts. For Instance, the Roots of *Angelica* and *Elecampane*, the Leaves of *Wormwood*, the *Lesser Centory*, *Germander*, *Ground-pine*, and the like: To which may be added, such as are commonly call'd *Antiscorbutics*, as the Roots of *Horse-radish*, the Leaves of *Garden Scurvy-grass*, *Water-creffes*, and the like. But these acrid and pungent Herbs, how agreeable and serviceable soever they may be to the Stomach, yet as they agitate the morbid Matter, which has long been generated, and increase the Heat, are to be used more sparingly than those, which by their mild Heat and Bitterness both strengthen the Stomach, and mend the Blood.

And, in my Opinion, a judicious Mixture of some Kinds of them answers the End of digesting the Humours better than any single Simple of this Class. For tho', whenever we have Occasion for a specific Virtue of any Medicine, it be a true Axiom, that the more simple it is, the better it is for the Purpose; yet, when a Cure is intended to be made by answering a particular Indication, every Ingredient contributes something towards curing the Disease; and in this Case, the more Simples the Medicine contains, the more powerfully it will operate. For this Reason, various Forms of Medicines may be elegantly compounded of the Ingredients above-enumerated, and the rest of the like Kind. I give the Preference to an Electuary made after the manner of *Venice Treacle*; because the Fermentation of the Simples together improves their Virtues, and produces a third Substance; which possesses greater Virtues in the Mixture, than any single Ingredient in the same Quantity. But I freely leave the Choice of such Ingredients, and the Forms in which they are to be given, to the judicious Physician; for I never thought myself obliged to write Prescriptions, but rather to point at the true curative Indications. The following is, however, the Form I myself generally make use of:

Take of the Roots of *Angelica*, Sweet-flag, Master-wort, Elecampane, the Leaves of *Wormwood*, the *Lesser Centory*, White Horehound, *Germander*, *Ground-pine*, *Scordium*, common Calamint, Feverfew, Wild Saxifrage, St. John's-wort, Golden-rod, Thyme, Mint, Sage, Holy Thistle, Penroyal, Southernwood, the Flowers of Chamomile, Tansey, Lily of the Valley, *English Saffron*, the Seeds of Treacle-mustard, Garden Scurvy-grass, Carraway and Juniper-berries, of each a sufficient Quantity: Let the Herbs, Flowers, and Roots, be gather'd when they are in their utmost Perfection; dry them in Paper Bags till they are reducible into fine Powder. To six Ounces of each, well mix'd together, add enough of clarify'd Honey and Canary to make the Whole into an Electuary, of which let the Patient take two Drams, Morning and Night.

Or, for want of this, let the following be used:

Take of the Conserve of Garden Scurvy-grass, an Ounce and an half; *Roman Wormwood*, and Orange-peel, of each an Ounce; candied *Angelica* and Nutmeg, of each half an Ounce; *Venice Treacle*, three Drams; compound Powder of Arum, two Drams; and, with a sufficient Quantity of the Syrup of Oranges, mix them up into an Electuary: Let two Drams of it be taken twice a Day,

VOL. I.

with five or six Spoonfuls of the following distill'd Water after every Dose:

Take of the Roots of *Horse-radish*, sliced, three Ounces; Garden Scurvy-grass, twelve Handfuls; Water-creffes, Brook-lime, Sage, and Mint, of each four Handfuls; the Peel of two Oranges; two Nutmegs bruised; *Brunswick Beer* or Mum, twelve Pints: Draw off only six Pints by the Alembic.

Of all the Medicines commonly known, *Venice Treacle* is the best for strengthening the digestive Organs; but as it contains many Ingredients that over-heat, and withal a large Quantity of Opium, an Electuary, like that above-describ'd, may be more commodiously compos'd of the principal warming and strengthening Plants. But Care must be taken to make Choice of such Simples as are most agreeable to the Patient's Palate, because it must be continued a long time; that is, for the greatest Part of his Life. Of all Simples the *Peruvian Bark* is the best; for a few Grains of it, taken Morning and Evening, strengthen and enliven the Blood.

And, in reality, these and such-like Medicines, which strengthen the Blood, and quicken the Circulation, (provided their Heat be not owing to vinous Spirits) do most Service in this and most other Chronical Diseases; inasmuch as every Disease of this kind is, in my Opinion, to be refer'd to the same general Cause, that is, the Indigestion of the Humours.

It is certain, that warm Herbs do great Service, where there is no manifest Contra-indication, not only in the *Gout*, but in most Chronical Diseases, as they procure a Warmth like that of Summer, even in the Midst of Winter; tho', if we accustom ourselves to use them in Summer, they will more effectually prevent such Diseases as are ordinarily occasion'd by the contrary Season: And, in reality, if we defer or neglect taking them till the Approach of Winter, at which time a considerable Quantity of Humours is amass'd, it is to be apprehended it may then be too late to have recourse to this Refuge.

But tho' (as I have already amply shewn) the *Gout* is of so peculiar a Nature, as to be render'd worse by Cathartics; yet, in most other Chronical Diseases, Bleeding and Purging are to be repeated as there is Occasion, previous to the Use of the strengthening and stomachic Remedies here recommended; but when the Patient has begun to take these, they must be continued without any intermediate Evacuations; for it is always to be remember'd, that whenever the Cure of any Disease is attempted by means of strengthening Remedies, all kinds of Evacuations prove highly injurious. Lastly, I do not assert, that the stomachic Medicines, just enumerated, are the most excellent of the Kind; but I maintain, that whoever can discover the most effectual Remedy to answer this Intention, is able to do much more Service in curing Chronical Diseases, than he himself may imagine.

But amongst the Remarks I proceed to communicate, relating to the Cure of the *Gout*, it is primarily and principally to be attended to, that all stomachic or digestive Remedies, whether they be medicinal, dietetic, or relate to Exercise, are not to be enter'd upon superficially, but are to be persisted in daily with great Exactness: For since the Cause in this, and most other Chronical Distempers, is become habitual, and in a manner chang'd into a second Nature, it cannot reasonably be imagined, that the Cure can be accomplish'd by means of some slight and momentary Change made in the Blood and Juices, by any kind of Medicine or Regimen, but the whole Constitution is to be alter'd, and the Body is to be in a manner fram'd anew. For it is otherwise here than in some acute Diseases, where a Person in full Strength, and perfect Health, is suddenly seiz'd with a Fever; whereas in the *Gout*, a Person, by indulging himself in Luxury, hard Drinking, neglecting his usual Exercise for several Years together, and debilitating his Constitution by Idleness, or an immoderate Application to Study, and other Errors of Life, injures, as it were designedly, the various Ferments of the Body, and oppresses the Animal Spirits, which are the principal Instruments of Digestion; whence the vitiated Juices, amass'd in the Habit, break out as soon as they are exalted to the utmost State, and produce great Evils, relaxing the fleshy Parts, and weakening the Joints, so that they readily receive the Humours thrown upon them. And in this manner a different Constitution is form'd by Degrees, the original one being quite destroy'd: And those Fits which engross the Attention of indifereet and injudicious Physicians, are no more, in Effect, than the Succession and Order of Symptoms, resulting from that Method which Nature ordinarily employs to expel the morbid Matter. Hence, therefore, 'tis a fruitless Labour to attempt the Cure of this Disease, by using any Medicine or Regimen occasionally; for since this Habit is chiefly founded on, and consists in, a Weakness of all the Digestions, and a Relaxation of all the Parts, both these Disorders must be remedied; and the Strength of the digestive Powers, as well as the Tone of the Parts, must be restor'd and recover'd, by Degrees,

green, to the former healthy State. But tho' it may seem impossible to accomplish this End effectually, not only because any particular Habit cannot easily be changed into a contrary one, but also because old Age, which ordinarily accompanies this Disease, greatly obstructs this Design; yet the Cure is to be attempted, as far as the Strength and Age of the Patient will permit, who will have the *Gout* more or less severely, in proportion to his Advancement in Years.

Further, it is to be observed, that digestive Remedies, either of the medicinal or dietetic Kind, are to be used principally in the Intervals of the *Gout*, and at as great a Distance as may be from the subsequent Fit: For Age obstructs the Cure so much, that the strengthening the digestive Powers, the recovering the debilitated Ferments of the Body, and restoring the Blood and Viscera to their due healthy State, cannot be speedily accomplished, and requires a continued Use of Medicine.

But tho' these and the like Remedies do Service, yet they are not able, alone, to answer this Intention of strengthening, but require the joint Assistance of such Things as do not properly belong to Medicine; it being an Error to imagine, that this, or any other Chronical Disease, can be cured by Medicine alone. (1.) Therefore, Moderation in Eating and Drinking is to be observed; so as, on the one hand, to avoid taking in more than the Stomach can conveniently digest, and of course increasing the Disease thereby; and, on the other hand, defrauding the Parts, by immoderate Abstinence, of the Degree of Nourishment requisite to preserve the Strength, which will weaken them still more; either of these Extremes being equally prejudicial, as I have often experienced, both in myself and others. (2.) As to the Quality of the Food, tho' whatever is easy of Digestion, singly consider'd, deserves the Preference, yet Regard must be had to the Palate and Appetite; because it is frequently found, that what the Stomach earnestly covets, tho' of difficult Digestion, does nevertheless digest better than what is esteem'd of easier Digestion, in case the Stomach nauseates it; but, however, Aliments, difficult of Digestion, should be used sparingly. (3.) I am of Opinion, the Patient ought to eat only of one Dish at a Meal, because feeding on different Sorts of Flesh injures the Stomach more than eating an equal Quantity of any one Kind; but, excepting Flesh, he may eat other Things at Pleasure, provided they be not acrid, nor season'd with Salt or Aromatics; because, tho' such Food does not hurt Digestion, it nevertheless does Mischief by agitating the morbid Matter.

As to the Times of Eating, it is prudent to eat at Dinner only; for, as the Night should seem peculiarly design'd to digest the Humours, it would be wrong to waste that Time in digesting the Aliment. For this Reason, *gouty* Persons should forbear Suppers; but they may drink a large Draught of small Beer, as being generally subject to the Stone in the Kidneys; the Increase whereof is considerably prevented by drinking such a Liquor at this time, as it cools and cleanses the Kidneys.

A Milk-diet, or the drinking Milk, either as it comes from the Cow, or boil'd, without adding any thing to it, except perhaps a Piece of Bread once a Day, hath been used these twenty Years past, and hath done more Service in abundance of *gouty* Subjects, whilst they persisted in it exactly, than all other kinds of Remedies: But upon quitting it, and returning to the ordinary way of Living of healthy Persons, tho' they used the mildest and slenderest Diet, the *Gout* return'd with much more Violence than ever; for, as this Regimen weakens the Constitution, the Patient cannot so well struggle with the Distemper, whence, of course, it proves more dangerous and lasting. Whoever, therefore, intends to begin and go on with this Regimen, ought, before-hand, to consider maturely, whether he be able to persevere in it for Life, which perhaps he will find too much for him, tho' he should have great Resolution. For I knew a Nobleman, who, after living a whole Year on Milk only with much Pleasure, during which time he had one or more Motions every Day, was constrain'd to leave it off, because he grew coddish on a sudden; the Temper of his Body was alter'd, and his Stomach at last nauseated Milk, tho' he had still a Liking to it.

Again, it is observable, that some Hypochondriac Persons of a gross Habit of Body, or those who have been long used to drink spirituous Liquors freely, cannot bear Milk. And further, the short and fleeting Benefit which those who can bear Milk receive from this Regimen, is not only derivable from its exceeding Simplicity, whence I doubt not but Water-gruel may have the same Effect, provided the Stomach will bear it; but from its rendering the Blood softer and smoother, by blunting the sharp Particles contain'd in the Mass. And moreover, which I esteem the principal Thing, Milk, being an Aliment that is absolutely unfit for grown Persons, represses that tumultuary Motion of the Humours which occasions the *Gout*; and for this Reason, the few with whom it agrees, escape this Disease, so long as they live upon Milk only, but no longer: For as it runs directly counter to the original Cause of the *Gout*, which is the Debility of the Digestions and Ferments, it does

much more Mischief in this respect, than Benefit in the other. And for want of sufficient Attention to this Particular, some inconsiderate People have fallen into gross, and manifestly fatal Errors; having, by attempting to attack the containing Cause of the Disease, that is, the Heat and Acrimony of the Humours, destroy'd the Digestions, and all the natural Functions.

As to Liquors, those are best, in my Opinion, which are weaker than Wine, and not so weak as Water, such as our *London* small Beer, hopp'd or unhopp'd, Extremes on either hand being pernicious. For, first, as to Wine, tho' the common Proverb intimates, that whether a Person does, or does not, drink Wine, he will have the *Gout*; yet it is certain, and confirm'd by the Experience of abundance of *gouty* Patients, that Wine is, in Fact, detrimental: For tho' it may be supposed to do Service by strengthening the digestive Powers, the Weakness whereof I have long look'd upon as the antecedent or primary Cause of the *Gout*; yet, with respect to the containing Cause thereof, it must be deem'd wholly pernicious, because it inflames and agitates the Humours which feed the Disease. Neither do we grant, that Wine, used by way of common Drink, helps Digestion; but rather asserts, that it destroys it, unless in such as have been long inur'd to it. For tho' Wine may, in passing thro' the Vessels, communicate some Heat to the Parts, yet it certainly depraves the Ferments of the Body, and wastes the natural Spirits: And hence I conceive it is, that great Drinkers generally die of the *Gout*, Palsy, Dropsy, and other cold Diseases. Furthermore, the continued and immoderate Use of Wine relaxes and enervates the Body, rendering it like the Bodies of Women; whereas moderately heating Liquors strengthen the Tone of the Parts; whence such as have always drank small Liquors are rarely afflicted with the *Gout*. It must farther be remark'd, that those are chiefly subject to this Disease, who, tho' they have naturally a weak Digestion, do notwithstanding receive too much Nourishment from a certain Richness of the Blood, and have their Bulk increas'd by a Kind of indigested Matter, instead of a solid, wholesome Substance: And the Use of Wine adds to this Richness of the Blood, and so not only amasses a new Collection of Matter, but also actually occasions the Disease, by stirring up the Cause of it, which had long lain conceal'd and inactive. Again, as the Blood of *gouty* Subjects nearly resembles that which is taken away in a Pleurisy, and other inflammatory Diseases, it is absurd to inflame it more with spirituous Liquors. And it is as dangerous, on the contrary, to have recourse to over-cooling Liquors, which, by utterly destroying both the Digestions, and natural Heat, do more Mischief; not occasioning Pain, as Wine doth, but Death itself; as Experience evinces in those Persons, who, having accusom'd themselves to drink Wine freely from their Youth upwards to old Age, and quitted it on a sudden for small Liquors, have soon destroy'd themselves thereby.

Gouty Persons should therefore observe it as a Rule in this Particular, to drink such Liquors as will not inebriate, if drank in a larger Quantity, or injure the Stomach by their Chiliness. Of this Kind, as I before hinted, is our small Beer; and in other Countries a similar Liquor may be made, by diluting Wine well with Water.

As to Water alone, I esteem it crude and pernicious, and have found it so to my Cost; but young Persons may drink it with Safety; and it is, at this Day, the common Drink of the greatest Part of Mankind, who are more happy in their Poverty, than we are with all our Luxury and Abundance. This is confirm'd by the great Multitude of Diseases, with which we are afflicted upon this Account, as the Stone, *Gout*, Apoplexy, and Palsy; besides the Injury done to the Mind in being forcibly acted upon, contrary to its natural Rectitude, by the Disturbance which the preternatural Spirits of such Liquors, together with the Animal Spirits, which are subservient to Thinking, occasion, by volatilizing it too much, and suggesting vain and idle Notions, instead of solid and weighty Reasonings; and thus, at length, rendering us facetious and witty, instead of wise; between which the Difference is almost as great, as between a Substance and a Shadow. But enough of this.

But tho' a Person who has the *Gout* mildly, and only at Intervals, need only use small Beer, or Wine diluted with Water, this Degree of the Disease not requiring a stricter Regimen; yet, when the whole Substance of the Body is in a manner degenerated into the *Gout*, it cannot be conquer'd without a total Abstinence from all Kinds of fermented Liquors, how small and soft soever they be; inasmuch as all Liquors of this Kind contain a pungent Spirit, with some Degree of Acrimony; and, what is worse, being possess'd of a Ferment, they dispose the Humour to a perpetual Fermentation, in the same manner as Yeast, added to Malt Liquors, communicates its fermenting Quality to the whole Liquor. For this Reason a Diet-drink is to be order'd for common Drink, to be made of those Ingredients which are commonly known and used for this Purpose, but it must not be too strong, because in that

Cafe it will inflame the Humours as much as Wine; neither, on the contrary, must it be so small as to injure the natural Functions by over-cooling. And this kind of Drink, provided it be made of such Ingredients as are most agreeable to the Patient, tho' it may occasion some Loathing for the first Week or Fortnight, nevertheless proves as agreeable afterwards as any other Liquors he has been used to drink. It will also excite the Appetite, and render it more natural than it used to be with fermented Liquors; and will be attended with this further Convenience, that whoever uses it for his own common Drink, may indulge more freely in other kinds of Diet, than when he drank Wine or Beer: For the Errors in point of Diet, which it is hardly possible to avoid entirely, will be, in some measure, corrected and amended thereby. But the principal Benefit, derivable from it, is its preserving from the Stone, which is the general Attendant of the *Gout*; as sharp and attenuating Liquors both contribute to breed the Stone, and occasion a Fit thereof. I prefer the following Decoction for its agreeable Colour and Taste:

Take of Sarsaparilla, six Ounces; Sassafras-wood, China-root, and the Shavings of Hartshorn, each two Ounces; Liquorice-root, an Ounce: Boil them together in two Gallons of Spring-water for half an Hour; afterwards infuse them upon hot Ashes, close cover'd, for twelve Hours; then boil them till a third Part of the Liquor is exhale; and as soon as it is taken off the Fire, infuse therein half an Ounce of Aniseeds for two Hours. Lastly, strain it off, and let it rest, till it becomes clear, and put it up into Bottles for Use.

It is most proper to begin with this Decoction, immediately after the Fit of the *Gout* is gone off; and it must be continued, both in the Fit, and in the Intervals, during the Remainder of Life. For it is not sufficient at a time when the Disease actually rages to study for new Medicines, as Nature, whilst the Humours are in such Commotion and Disturbance, cannot well bear the Exchange of fermented Liquors of an active and spirituous Quality, for such as are small and without Spirit. At the same time the above-mentioned Elecluary must be used, taking it in like manner, both in the Fit, and in the Intervals; for the Warmth of this will in some measure correct the Smallness of the Diet-drink, as it will communicate a due Degree of Heat to the Blood and Viscera, without that Agitation which is generally occasioned by the Heat of fermented Liquors.

If it be objected, that a total Abstinence from Wine, and other fermented Liquors, would render Life in a manner insupportable, I answer, it must be considered, whether it be not much worse to be tortured daily by the Pain accompanying an inveterate *Gout*, (for, when it is gentle, there is no Need of so strict a Regimen) than to be confined to this Decoction, which if the Patient continues, he may indulge himself in most other Eatables; not to repeat, that this Drink, like all other things, grows pleasant by Custom. Doubtless, whoever hath had this Disease, supposing him not void of Reason, will not hesitate at all, to which he should give the Preference.

But notwithstanding, if the Patient, either from a long-continued and immoderate Use of spirituous Liquors, from Age, or, lastly, from great Weakness, cannot digest his Food without Wine, or some other fermented Liquor, 'tis certainly dangerous for him to leave off Wine on a sudden; an Error that has in Reality destroyed Abundance of People. Such a Person, therefore, in my Opinion, should either not use the dietetic Apozem above prescribed; or, if he be resolved to take it, should accustom himself to it by Degrees, (drinking a Glass of Wine for some time at Meals) and rather by way of Medicine than Diet, till it becomes more familiar to him. But *Spanish* Wine is to be prefer'd here to *Rhenish*, or *French* Wine, these last being subject to exasperate the Humours, and increase the morbid Matter, notwithstanding they are very grateful to the Stomach. To which we may add, that as they are almost as crude and indigested as our Cyder, they are consequently not so warm and cardiac, as the Case demands. And these Particulars may suffice concerning the Diet of *gouty* People. There is another Caution to be inculcated, which, though it may seem trifling, is of great Moment, both in digesting the *gouty* Matter during the Fit, and preventing the Generation thereof in the Intervals; and that is going to Bed early, especially in Winter; for, next to Bleeding and Purging, nothing impairs the Strength more than sitting up late at Nights; which every Valetudinarian can affirm from his own Experience, provided he has only carefully observed how much more vigorous and chearful he rises in the Morning when he goes to Bed early, and how languid and faint he has found himself after sitting up late. And tho' there should seem to be no Difference betwixt going to Bed earlier or later, provided a Person lies in Bed for the same time, as for Instance, whether he goes to Bed at Nine and rises at Five, or at Eleven and rises at Seven, it is not an indifferent Matter; and I conceive, for this Reason principally, that in the Day the

Spirits are dissipated, either by Exercises of the Body or Mind, which are so weak in Valetudinarians, that they require the Assistance of Sleep earlier in the Evening; and, as the Approach of Night occasions a kind of Relaxation of the Animal Economy, which was preserved in the Day by the Heat of the Sun, the Heat of the Bed becomes necessary to supply the Place of the Sun, especially during the Winter Season. But the Spirits being refreshed and invigorated in the Morning by the preceding Night's Sleep, together with the Warmth of the Bed, and the ensuing Day likewise strengthening the Tone of the Parts still more, the rising early at this time, though it may take an Hour or two from the Morning Sleep, hurts the Constitution less than sitting up an Hour or two later in the Evening. This being the Case, I would advise such as are subject to the *Gout* to go early to Bed, especially in Winter, and to rise betimes in the Morning; though their having had less Sleep than usual may incline them to lie longer, in order to make it up. For the Sleep which is got in the Morning will rob them of as much the ensuing Night; and thus at last by doing Violence to Nature, and despising its wise Lessons, the Night may be preposterously turned into Day, and the Day into Night.

The Patient must also use his utmost Endeavour to keep his Mind easy, as all unbounded Appetites, and inordinate Passions, eminently tend to dissolve the Texture of the Spirits, which are the Instruments of Digestion, and so of course to increase the *Gout*. He should therefore wisely reflect on his Mortality, and not vainly imagine he is to escape the Evils that are necessarily annexed to this State. For, whether any Affliction of Mind befalls him through his own Fault, or that of others, certain it is, that he will never be able to prescribe Laws to the World, which has not always obey'd any single Person hitherto, how powerful and wise soever he has been; nor will every thing always answer any one's Expectation so exactly, as he may have promised himself; and perhaps, whilst he is intent upon worldly Affairs, unexpected Death renders him an Example of human Frailty, whilst he foolishly deprives himself of the transitory Enjoyments of Life. Too much Application to Study and Business is likewise equally pernicious; for as this Disease is more frequently accompanied with Melancholy than any other, such as are subject to it ordinarily fatigue and oppress the Spirits to that Degree, by long and intense Meditation, even without the artificial Help of Books, that the Body cannot long preserve itself in a healthy State; and hence I conceive it is, that few Fools have had the *Gout*.

But nothing so effectually prevents the Indigestion of the Humours, (which I esteem the principal Cause of the *Gout*) and consequently strengthens the Fluids and Solids, as Exercise. It must, however, be observed, as I have already mentioned, that as there is more Necessity for making a thorough Change in the Constitution in this than in any other Chronical Disease, so Exercise, unless it be used daily, will do no Service; for if it be intermitted at times, it will avail little towards changing the Constitution, now reduced to a languishing and effeminate Condition by Idleness and Indulgence, and may perhaps do Mischief by causing a Fit, after leaving it off for a considerable Space of Time. But Exercise should be moderate, because the contrary in aged Persons, who are principally subject to the *Gout*, wastes the Spirits too much, and consequently hurts the digestive Faculties. And though this may not be relished by one, who besides old Age, Inability to Motion, and Slothfulness, which are natural in this Disease, is likewise tormented with Pain, yet, if Exercise be omitted, all the Remedies which have been hitherto discovered will not avail. And as the Intervals between the Fits cannot be long without constant Exercise, so the Patient will likewise without it be more subject to the Stone, which is a more dangerous and painful Disease than the *Gout*.

To these add a Particular of some Importance, which is, that the chalky Concretions are considerably increased in the Joints, and especially in the Fingers by long Inactivity; so that at last these Parts are entirely deprived of Motion. For, however positively some may assert, that the Matter of these Concretions is only the Tartar of the Blood translated to the Joints, it will nevertheless readily appear, upon considering the Matter with a little more Attention, that when a large Quantity of indigested *gouty* Matter falls upon some of the Joints, and occasions a lasting Swelling of the neighbouring Parts, it happens at last partly from their assimilating Property being destroyed, and partly from the Obstruction caused therein by this sluggish Humour, that this Matter is generated; which is changed into this kind of Substance by the Heat and Pain of the Joint, and increased every Day in Bulk, converting the Skin and Flesh of the Joint into its own Nature, and may be got out with a Needle, and resembles Chalk, Crab's-eyes, or some similar Substance. But I have experienced in my own Case, that not only the Generation of these Concretions may be prevented by daily and long-continued Exercise, which duly distributes the *gouty* Humours throughout the whole Body, that otherwise readily attack a particular Part, but it also dissolves old and indurated

durated Concretions, provided they be not come to such a Degree of Hardness, as to change the external Skin into their Substance.

As to the Kind of Exercise, Riding on Horseback is certainly the best, provided it be not contra-indicated by Age, or the Stone; and indeed I have often thought, if a Person was possessed of as effectual a Remedy as Exercise is in this and most Chronical Diseases, and had the Art also of concealing it, he might easily raise a considerable Fortune. But if Riding on Horseback cannot be used, frequent Riding in a Coach nearly answers the same End; and in this respect at least, the Generality of *gouty* Persons have no Cause for Complaint, because their Riches, which excited them to indulge those Excesses that occasioned the Disease, enable them to keep a Coach, in which they may take the Air, when they cannot ride on Horseback. It must be remark'd however, that a wholesome Air is greatly preferable to one which is unwholesome for this Purpose: Thus the Country is better than the Town, where the Air is full of Vapours that exhale from the Shops of different Mechanics, and render'd still more dense by the Closeness of the Buildings, as it is in *London*, which is esteemed the largest City in the Universe. But the great Difference there is between using Exercise in the Country, or in Town, a *gouty* Person will soon find upon Trial.

With respect to Venery, if the *gouty* Patient be in Years, as he is unprovided now with a sufficient Share of Spirits to promote the Digestions, and his Joints, and the neighbouring Parts, are consequently too much debilitated and relaxed, without any Assistance from this destructive Quarter; in this Case, I say, it is as imprudent for such an one, in my Opinion, to indulge those Pleasures, as it would be for a Person, after having engaged to go a long Journey, to spend all his Stock of Provisions before setting out. Moreover, besides the Mischief it does himself, for want of restraining the languid Inclinations of declining Age, he loses the great Privilege of enjoying that exquisite Satisfaction, which by the particular Indulgence of Nature is reserved for the Aged only, who, towards the Period of their Lives, are freed from the Violence of those Passions, which, like so many savage Beasts, prey'd upon them perpetually in Youth; the Gratification of them being by no means an Equivalent for the long Train of Evils which either accompany, or follow it.---And let this suffice for the Regimen.

But though a *gouty* Person, by carefully observing these Rules relating to Diet, and the rest of the Non-naturals, may prevent violent Fits, and so strengthen the Blood, and solid Parts, as to free himself from that Multitude of Evils, which render the Disease not only intolerable, but in the End, fatal; yet, notwithstanding, after some Intervals, he will sometimes be seized with the *Gout*, especially towards the Close of Winter. For though in the Summer-season, whilst the Tone and Strength of the Blood are mended, and preserved in that State by the Heat of the Sun, and Perspiration goes on in a proper manner, the Digestions must necessarily be much better performed than in Winter; yet, as the Blood is weakened, and Perspiration obstructed, upon the Approach of this Season, there must necessarily be a copious indigested Matter amassed, which at last, by its long Continuance in the Habit, will form a Distemper, and manifest itself by proper Symptoms, giving a Fit upon the first Occasion, either by the Humours being put into Motion by the nearer Approach of the Sun, the Use of Wine, violent Exercise, or any other evident Cause.

'Tis clear from what has been delivered, that whoever undertakes the Cure of this Disease, must endeavour to make a thorough Change of his Habit of Body, and restore it to its former Constitution, as far as Age, and other Circumstances, will permit; and this must be attempted only in the Intervals between the Fits. For when the morbid Matter is not only generated, but already thrown upon the Joints; it will be too late to endeavour to change it, or to expel it, any other way; since it must be expelled by that Method only which Nature points out, and the Business is to be left entirely to her Management. This Practice obtains in the Paroxysms of Intermittents; which, for the same Reason, we do not attempt to remove till the Heat be over. For it is equally absurd to be solicitous to take off the Heat, Thirst, Restlessness, and other Symptoms of these Fevers, as to think the *Gout* is to be cured by endeavouring only to abate the Symptoms, whereas the Cure is by this means obstructed and prolonged. For the more the Pain is eased, the more the Concoction of the Humours is prevented; and, in the same Degree, the Lameness is relieved, and the Expulsion of the morbid Matter is check'd. Again, the more the Violence of the Fit is suppressed, the longer it will last, and the shorter likewise the Interval will be between the Fits, and less free from every Degree of the Symptoms accompanying this Disease; which will be acknowledged by any one who has attentively considered what we have delivered above, in our History of this Disease.

But though nothing considerable must be attempted in the Fit, excepting only, that those Symptoms are to be relieved,

which an improper Method of Cure sometimes occasions; yet, as this Disease is unanimously held to arise from a Plenitude of Humours, it may not, perhaps, be amiss for the Patient to forbear Flesh for a few Days in the Beginning of the Fit, and instead of it to use Water-gruel, or some such Aliment; for such a slender Diet will greatly contribute towards lessening the Quantity of the morbid Matter, and give Nature an Opportunity of digesting it sooner. But as Constitutions differ considerably, insomuch that some Persons cannot bear to abstain from Flesh, without being immediately seized with a Disturbance of the Spirits, Faintings, and other Symptoms of the hysteric Kind; such therefore will receive Hurt by refraining from Flesh any longer than the Stomach is set against it, which, for the most part, is only the first or second Day of those particular Fits; all which, joined together, constitute the whole Fit, as we have intimated above. But whether the Patient eats Flesh sooner or later, he must be equally cautious, both with respect to eating more, during the Fit, than is requisite to support Nature, and to the Quality of the Food. For great Care should be had to guard against every Error, either in the Quantity or Quality of the Diet, both as to Solids and Liquids, even in the Intervals of the Fit, and especially in the Fit itself. And further, no little regard is to be had, in the Intervals, to the rest of the Non-naturals, of which we have discoursed largely above; and though the Pain, and great Inability to Motion, may seem to contra-indicate Exercise, which I have principally recommended in this Distemper, the Labour must nevertheless be undertaken; for though the Patient may think himself utterly unable to bear to be carried into a Coach in the Beginning of the Fit, and much more so to abide the Motion of it; yet, upon Trial, he will soon find himself more easy from such a Motion, than when he is at home in his Chair. Again, if this kind of Exercise be used Morning and Afternoon for some Hours; another Advantage attends it, which is, that it causes him to rest a great Part of the Night, which he could not do when he kept constantly within Doors; for very moderate Exercise fatigues a *gouty* Person so much, that he falls asleep. Besides, this kind of Exercise is, in some Degree, preventive of the Stone, which an idle and sedentary Life generally occasions. But the principal Advantage derivable from the constant Use of Exercise, is the preventing the Loss of Motion in the Limbs, which seizes several People after the first or second long Fit, occasioned by the Contraction of the Tendons of the Hams and Heels; for when the Pain has been so violent, that they have lain still a long time, not caring to stretch out their Legs when it has attacked the Knees, they at last lose the Use of their Legs and Feet, for the Remainder of Life, both during the Intervals, and in the Fits, which nevertheless they do not escape. Again, in aged People, whose Concoctions are considerably vitiated, and who, through the long Continuance of the Disease, have the Substance of their Bodies, in a manner, changed into the *Gout*, it is not to be expected, that the Disease can ever be brought to Digestion without Exercise; for when it exceeds the natural Strength, they frequently perish by Faintings and Sickness, occasioned by the copious morbid indigestible Matter; which cannot be assimilated, and destroys them like Poison.

But notwithstanding what has been said of the Usefulness of Exercise in the Paroxysms of the *Gout*, yet, if the Fit be so violent as to sink the Patient in the Beginning of it, (which happens chiefly in those Subjects in whom the *Gout* is in the Height, and hath continued in that State for many Years) and confine him to his Room, it will be proper for him to keep his Bed a few Days, till the Pain abates, as the Warmth thereof will, in some measure, supply the Want of Exercise; for lying constantly in Bed digests the morbid Matter more effectually in a few Days, than sitting up does in many, especially in the Infancy of the Disease, provided the Patient can forbear Flesh without Faintings, and other bad Symptoms, and be contented only with Water-gruel, small Beer, and the like. But it is well worth observing, that if the *Gout* be inveterate, and disposes the Patient to Faintings, Gripings, a Looseness, and the like Symptoms, he is in great Danger of being destroyed by one of these Fits, unless he uses Exercise in a free and open Air; for abundance of *gouty* Persons have been carried off by these Symptoms, which they have been subject to from being confined within Doors, and especially in Bed, who had lived longer, if they would have undergone the Fatigue of Riding in a Coach a great Part of the Day. For though a Person, who is afflicted only with a Pain of his Limbs, may keep his Room, yet another, who, instead of violent Pain, is troubled with Sickness, and the other Symptoms above enumerated, cannot do the same, without endangering his Life. And, in Effect, it is well for the Patient, that there is no great Necessity for Motion or Exercise, so long as the Pain continues so severe, that he cannot bear it; his Life being secured by the Pain, which is the salutary, though disagreeable Remedy of Nature.

But as to the Symptoms of the *Gout*, we are to relieve those which threaten Life; the most frequent of which are the Weakness and Languor of the Stomach, with Gripings, as if occasioned by Wind; and these happen either to those who have

had

had the Gout many Years; or those, who, though they have not had it long, have nevertheless brought it on too hastily by quitting spirituous Liquors, on a sudden, for those which are thin and very cooling, or by applying repelling Plaisters, and other cooling Topics, to the Parts affected, to ease the Pain; whence the morbid Matter, which should have been deposited on the Joints, is translated to the Viscera. I have tried several Remedies in my Fits, of late Years, to relieve these Symptoms; but nothing did me so much Service as a small Draught of Canary, taken occasionally, as the Sickness and Faintness required. Neither red *French Wine*, *Venice Treacle*, or any other of the Cardiacs I am hitherto acquainted with, is so efficacious. But we are not to imagine, that Canary, or any other Cordial, can wholly secure the Patient without the Use of Exercise.

But if some violent Symptom comes on suddenly, from the striking in of the gouty Matter, and threatens Life, we are not to trust to the Wine or Exercise above commended; but here, provided only the natural or vital Parts, and not the Head, be affected, we must have immediate recourse to Laudanum, exhibiting twenty Drops of it in a small Draught of Plague-water, and the Patient must compose himself to Rest in Bed.

But if the gouty Matter occasions a Looseness for want of being translated to the Limbs, provided it be not the Crisis of a particular Fit, and yields not to Laudanum and Exercise of all Kinds, (for this is to be tried first in the Cure of a Looseness) but continues, attended with Sickness, Gripings, and the like Symptoms, the only Remedy I know in this Case, is to raise a Sweat by a suitable Method, and proper Medicines; and, if this be done every Morning and Night, for two or three Days together, keeping it up two or three Hours at a time, it generally checks the Looseness, and forces the morbid Matter to the Limbs. To this Method I owe my Recovery from this Disease some Years since, (which I had imprudently occasioned by drinking cold Water for my common Drink) after having used Cardiacs and Astringents of various Kinds to no Purpose.

There is another Symptom, which I have often seen, though it is not so common, which is a Translation of the peccant Matter to the Lungs by a Cough in the Winter-season, occasioned by taking Cold in the Fit, which, by Degrees, invites the Matter to those Parts; the Joints, the mean while, being in great part, or totally, freed from the Pain and Swelling, by the Translation of the morbid Matter to another Part. In this single Case, the curative Indication is not to be levelled at the Gout; but this Symptom is to be treated like a true Peripneumony; that is, by repeated Bleeding, and cooling and inebriating Medicines and Regimen, as the Blood which is taken away, exactly resembles that of Pleuritic Persons. The Patient likewise should be gently purged in the Intervals of Bleeding, to carry off the Matter that is lodged in the Lungs. But Sweating, how effectual soever it may be in forcing the morbid Matter upon the Limbs, proves detrimental in this Case, by hardening the Matter that is forced upon the Lungs; whence proceed small Abscesses, and in the End, certain Death. See *Musgrave's Sentiments on this, below*.

It is farther to be remarked, that most gouty People, after the Disease has been of long Standing, become subject to the Stone in the Kidneys, and are generally seized with Nephritic Pains, either at the Height, or more frequently at the Decline, of the Cardinal Fit, which are very severe, and weaken the Patient considerably, who was too much debilitated and exhausted by the preceding Distemper. In this Case, omitting all other Remedies, let him immediately drink a Gallon of Posset-drink, in which two Ounces of Marshmallow-roots have been boiled, and inject the following Clyster:

Take of the Roots of Marshmallows, and white Lilies, of each an Ounce; the Leaves of Mallows, Pellitory of the Wall, Bears-breech, and Chamomile-flowers, of each one Handful; Linseed and Fenugreek-seed, of each half an Ounce; boil them together in a sufficient Quantity of Water to a Pint and an half; dissolve in the strained Liquor brown Sugar, and Syrup of Marshmallows, of each two Ounces; mix the Whole for a Clyster.

As soon as the Posset-drink is ejected by Vomit, and the Clyster come away, exhibit twenty-five Drops of *Liquid Laudanum*, or fifteen Grains of *Matthioli's Pills*.

If outward Applications be inquired after to ease the Pain in the Gout, I know of none, (though I have tried abundance, both in myself and others) besides Coolers and Repellents, which I have already shewn to be unsafe. And I scruple not to affirm, from a long Course of Experience, that most of those who are supposed to perish by the Gout, are rather destroyed by wrong Management, than by the Disease itself. But if any one be desirous of trying the Efficacy of such external Medicines as are esteemed certain Anodynes, to prevent being mistaken, in-

VOL. I.

stead of applying them at the Declension of a particular Fit, when the Pain is just going off spontaneously, let them be used in the Beginning, and he will soon be convinced of their Insignificance, and the Groundlessness of his Expectation, as they sometimes do Mischief, but can never do Service.

For this Reason I have laid aside the Use of Topics for several Years; but I found most Benefit formerly from a Cataplasin, made of white Bread and Saffron boiled in Milk, with the Addition afterwards of a small Quantity of Oil of Roses; which, however, did not at all relieve me in the Beginning of the Fit. If therefore the Pain be extremely severe, the Patient had better keep in Bed till it abates a little, than to have recourse to Anodynes; but however, it will be proper, if the Pain be very violent, to take a Dose of Laudanum in the Evening, otherwise it is better omitted.

But now I am treating of external Applications, I must say something of a certain *Indian Moss*, intitled *Moss*, which is highly esteemed of late in the Cure of the Gout, the manner of using it being to burn a small Quantity of it upon the Part affected. Now, though this Remedy is said to come from the *East-Indies*, and to have been unknown to the *Europeans* till of late Years, it will nevertheless appear to be of more antient Date with us, by consulting the Writings of *Hippocrates*, compiled above two thousand Years ago. Treating of the Sciatica, he advises, "If the Pain be fixed in any one Part, and does not yield to Medicines, in whatever Part it be, to burn it with raw Flax;" and a little farther, speaking of the Gout in the Feet, he says, "The same Things are proper here, that do Service in the Gout of the Joints; and indeed, this is a long and painful, but not a mortal Disease: If the Pain, however, continue in the Fingers, burn the Joints above the Joints with raw Flax." Now, I am of Opinion, that no one can imagine, that there is such a Specific Difference betwixt the Flame of burning Flax, and that of *Indian Moss*, as to render the latter more effectual in the Cure of the Gout than the former, any more than he can suppose, that a Fire made with Oak Billets can do more than another made of Ash. This Burning of the Part affected bids fair to ease the Pain, and may sometimes effect it, the most subtle and spirituous Part of the morbid Matter deposited on the Part being by this means expelled. But the Relief hereby obtained must necessarily be of short Duration, because it does not at all amend the Indigestion, which is the antecedent Cause of the Gout; and it seems superfluous to observe, that it is to be used only in the Beginning of this Disease. For when the Gout, either on account of its long Continuance, or through wrong Management, retreats to the internal Parts, which sometimes happens, and instead of Pain causes Sickness, Gripings, and Abundance of the like Symptoms, no judicious Person will be for using Fire. See *MOXA*.

And now I have delivered all that I have hitherto discovered concerning the Cure of this Disease; but if it be objected, that there are many specific Remedies for the Gout, I freely own I know none; and fear that those who boast of such Medicines are as ignorant as myself. And, in Effect, it is to be regretted, that the excellent Art of Medicine should be so much disgraced by such Trifles, which the Credulous are deceived with, either through the Ignorance or Knavery of Authors; Remedies of this Kind being extravagantly magnified in most Diseases by those who offer them to Sale. *Sydenham*.

Before I proceed to *Musgrave's* Account of the *Abundant Gout*, I must specify the Preparation of some Remedies he frequently refers to. The first of these is what he calls

ALCOHOL MARTIS.

Put ten Pounds of the Filings of Steel into a Pan, or glazed Earthen Vessel; moisten them with human Urine, then dry them, either by the Heat of the Sun, or that of the Fire; then moisten them again with the same Liquor, stirring the Particles twice a Day with an Iron Spatula to prevent their Coalescence; continue this till the whole Mass is reduced, as it were, to Rust; when it is so, pound it in an Iron Mortar. When 'tis pounded, throw it into a Vessel in which there are about four Gallons of Spring-water; mix the Powder with the Water. About a quarter of an Hour after, gently draw off the uppermost and least turbid Part of the Water, and evaporate it till the Powder swimming in it is left dry. Let the Liquor also left in the Vessel be evaporated in like manner. Let the grosser Powder in the Bottom be moistened with Urine, and managed in the same manner as at first. Let the Nutrition, Trituration, and Separation by Water, be thus continued, till the Whole of the Iron is reduced to a very fine Powder. Put this Powder, when dry, into a Piece of coarse Paper wrapt up in the Form of a Cone; pour upon it by little and little, and at different times, warm Spring water, till the urinous Salt being quite washed away, an impid Water drops through the Paper; then dry the Powder again, and keep it for Use.

This most subtle Rust of Steel is a mere *Alcohol* of uncommon Efficacy, not only in the Gout, but also in most other chronical Disorders, especially if the Patients are of weakly and tender Constitutions.

The Dose is half a Scruple, either once or twice a Day, as the Circumstances of the Patient seem to require.

PULVIS RUBER EXONIENSIS.

Take of the Tops of Pimpernel, Scabious, Dragons, Betony, Germander, and Tormentil, each four Ounces; mix them together, and cut them. Digest for twenty-four Hours in a Sand-heat, in four Pounds of white Port Wine, the Glass in the mean time being well stopped; then strain off, and make an Expression.

Then take of the Powder of *Armenian Bole*, one Pound; with the aforesaid Infusion let it be reduced to the Consistence of a Liniment; shake it often, then moisten it again with the Infusion. Thus let the Mass be nourished or moistened with the Infusion; but along with the last half Pound of the Infusion, let there be added to the Mass one Ounce of Mithridate, one Ounce and an half of Diascordium, Confection of Kermes, and Powder of Turmeric-root, each half an Ounce; *Virginian Snake-root*, and *English Saffron*, each two Drams. Mix all together, and dry the Whole; make into Troches, or little Cakes, to be hardened in the Heat of the Sun, and preserved for Use. The Dose is from one scruple to one and an half, or two Scruples.

AQUA HISPANORUM ARTHRITICA.

The *Spanish Gout Water*, as 'tis called, is by some highly esteemed, and is indeed of very great Efficacy; 'tis prepared in the following manner:

Take of Cloves, Nutmegs, Ginger, Mace, Cinnamon, Black Pepper, Saffron, Zedoary, Galangals, Juniper-berries, Citron and Orange-peel, Spikenard, Cubebs, Hepatic Aloes, Wood of Aloes, Sweet Flag, and Steeche, each half an Ounce; Tops of Sage, Basil, Rosemary, Mint, Marjoram, of common Bay-berries, Pennyroyal, Shavings of Gentian, Elder-flowers, White and Red Roses, Ground-pine, Germander, Calamint, Baum, Origanum, and Feverfew, each two Handfuls; of Figs, Dates, Bitter Almonds, Pine-nut Kernels, and Raisins of the Sun, each six Ounces; of Virgin Honey, one Pound; of the finest Sugar, one Pound; and grated Musk, one Dram. When these Ingredients are cut and bruised, let them be put into fifteen Pounds of the best Canary Wine to infuse for ten or twelve Days; then distil in Balneo Marie.

This Water is esteemed of uncommon Efficacy in Arthritic Disorders of the Stomach and Intestines. The Dose is half an Ounce, to be taken with a little Sugar or Crumb of Bread; it may be repeated at Pleasure. It is also used externally for removing arthritic Pains of the Joints; and the Method of applying it is, to make it very warm, and then embrocate the Part affected with it.

From MUSGRAVE.

Whilst the Arthritic Matter is deposited upon the Extremities, particularly the Joints, and remains there without any Danger of returning, Nature is pursuing her Purpose, and defending herself from the Danger she would be in from a Retrocession of the Gout, and its fixing upon any Part of the Trunk.

These anomalous Symptoms of the Gout, when they appear before the Patient has had a Fit regularly, are very difficult to be distinguished from other Diseases, which the Part where it fixes, is subject to. And therefore *Musgrave* says, 'tis impossible to know anomalous Symptoms of the Gout, without a previous Fit.

The Arthritis Vaga is attended with Pain, and sometimes with a white Swelling, like an Oedema.

Those who have the regular Gout, have seldom, unless by Accident, any other great Disorder.

The anomalous Gout visits most frequently the Stomach and Intestines; whence arise Loss of Appetite, and bad Digestion, Vomiting, Colic, Dysentery, Diarrhoea, and sometimes Arthritic Abscesses.

Sometimes it seizes the Head, and causes a Cephalalgia, Vertigo, or Apoplexy; and sometimes seizing the Nerves, causes a Palsy.

It often fixes upon the Organs of Respiration, and causes an Asthma, Cough, Hemoptoe, and Phthisis.

Sometimes it appears in the Shape of an Angina.

At some times it seizes the Gums, and is called *Dentium Podagra*, improperly.

At other times it seizes upon the Kidneys, and causes the Stone, Dysury, and Strangury.

No Part of the Body is free from it.

The natural or acquired Weakness of any of the Viscera, or internal Parts, is the Cause of the Gout's fixing upon them.

Whatever repels the Gout from the Extremities, as Cataplasms, Plaisters, &c. causes it to fix upon the Viscera.

The Symptoms of the Anomalous Gout differ exceedingly, as they happen to fix upon different Parts, causing in Appearance different Distempers.

They also differ, as the Matter is sometimes purely gouty, and sometimes has with it a Mixture of some other Distemper, as Scrophula, Scurvy, or the like.

The Anomalous Gout is driven into the Extremities from some Parts much more easily than from others. From the Fauces it removes without much Trouble, and almost of its own Accord. On the contrary, it is removed from the Nerves with the utmost Difficulty.

Too tight Shoes are sometimes the Cause of the Gout's leaving the Extremities, and fixing on the Viscera.

Those things which evacuate the gouty Matter, tho' sometimes absolutely necessary, yet seldom cure the Distemper, but are even prejudicial when improperly used. But the Cure of the Distemper can be no otherwise completed, than by an Expulsion of the Gout into the Extremities.

Those Medicines which expel the gouty Matter, and drive it upon the Extremities, are taken from the Classes of Cardiacs and Diaphoretics, amongst which are the following:

Powders of Zedoary, Contrayerva, Gentian, *Virginian Snake-root*, *Gascoign's Powder*, the Pulvis Purpureus of *Bates*, Goa Stone, Contrayerva Stone, Species Diambrae, Confectio Liberans; the Pulvis Alexipharmacus, and Pulvis Stomachicus Amarus, of *Fuller*; the Pulvis Bezoarticus of *Willis*; the Pulvis Ruber Exoniensis; the Flowers of Sal Ammoniac, and others of the same Kind.

Venice Treacle, Mithridate, the Electuarium de Ovo.

Spirit of Hartshorn, either simple or succinated; Spirits of human Blood, of Urine, of Silk, and Sal Volatile Oleosum.

Amongst Wines, the most effectual are *French White-wine*, Champaign, Mosel, Rhenish, Burgundy, Bourdeaux, Portuguese Wines, to which may be added subacid Cyder.

As gouty Patients are generally forbid the Use of some of these Wines, it may seem extraordinary to such, that *Musgrave* should recommend them. But it must be considered, that they are directed to abstain from such Wines, because they promote Fits of the Gout; with which View *Musgrave* recommends them, in order to render an anomalous Gout regular in the Extremities.

But of all Remedies, *Musgrave* thinks nothing so powerful as Steel, the best Preparation of which is, the *Alcohol Martis* above described.

If, after the Use of these Medicines for four or five Days, no Pain is perceived in the Extremities, we must then proceed to such external Applications, as invite the arthritic Matter downwards. Therefore apply to the Part, which used to be pained in Fits of the Gout, a Plaister of Gum Caranna, or that called *Oxyroceum*; or the Cephalic Plaister, with one half, a third, or a fourth of *Burgundy Pitch*.

Urtication (*whipping with Nettles*) is of Use, which was much practised by the Antients; as also extremely hot Baths, and the Skins of Animals just taken off, and Oil Cast.

In Cases of extreme Danger, where the Strength of the Patient can bear it, such a *Phanigmus* as the following may be of great Use:

Take of old Barm, two Parts; of Mustard-seed, Horseradish, Garlick, the Tops of Rue, and Pigeons-dung, of each equal Parts; beat up these to the Consistence of a Cataplasma, with sharp White-wine Vinegar.

Part of this is to be applied, as hot as the Patient can bear it, and the Part must be covered with Flannels, or the Cataplasms may be spread on Flannels, and applied, renewing it when it grows cold, till it causes a Tumor. Mean time, if the Patient is low, or faint, through Excess of Pain, he should have a Cardiac Julap, or a Glass of generous Wine, which is much better. When a Tumor is formed, an Epispastic must be applied to let out the contain'd Matter, lest otherwise it should return into the Blood.

When there is no Necessity for immediate Help, and the Patient is weak, tender, or impatient of Pain, a common Epispastic should be applied to the Legs, or Cubit, according as the Gout used to verge towards the upper or lower Parts; and, this being taken off twelve or eighteen Hours after, the following Plaister must be applied to continue the Running.

Take

Take of Hog's Lard two Drams and an half ; of Melilot Plaster, a Dram and an half ; Powder of Cantharides, a Dram.

By this means the Running should be continu'd six, eight, or ten Days, according to the Circumstances of the Case.

Either of these Proceedings generally relieves the *Gout* in a few Days. Mean time the Matter discharg'd is so salt, that it makes the adjacent Parts itch, and sometimes inflames them. When this Ichor is evacuated, the Symptoms generally are relieved, and the Patient gets hearty, and recovers his Appetite and Spirits, and for some time is free from another Fit of the *Gout*.

Musgrave is of Opinion, that the most dangerous thing a Person long afflicted with the *Gout*, and us'd to a free Way of living, can attempt, is to endeavour to conquer it by Abstinence.

Of the Gout in the Stomach.

As the primigenial *Gout* is often caused by Indigestion, and Weakness of the Stomach, so no Part is so often, or so much, afflicted with the anomalous *Gout*.

This Facility to receive and retain the *Gout*, is often owing to a connate Imbecillity ; and sometimes to a Weakness contracted from too much Venery, Grief, Fear, or any other relaxing Passion of the Mind, by which Imbecillity the Stomach becomes more liable to receive, and less capable to repel, the *arthritic* Matter.

But it very frequently happens, that the *Gout* is invited into the Stomach by crude, acid, bilious, or some other vicious Juices contain'd therein, which stimulate the Coats thereof ; and this happens just for the same Reasons that Sinapisms and Epispastics invite it to the Extremities.

Sometimes external repelling Cataplasms or Plaisters, apply'd injudiciously to the Extremities, are the Cause of the *Gout's* fixing in the Stomach. External Cold has the same Effect, either from the Air or Baths.

When the *Gout* has been for some time regular, and the Patient has had many Accessions and Recessions in the Extremities at Intervals, we often see the Fit shorten'd, or broken off, unexpectedly, by means of Cold, repelling Plaisters, Cataplasms, or Unguents ; or else by a Debauch, overloading the Stomach, or some Error in point of Diet ; or else the Interval has been longer than usual, and the Paroxysm has been deferred longer than was consistent with Health.

This Interruption or Intermission of the *Gout* is often follow'd by Loss of Appetite, and loathing of Food ; to which afterward a Weight in the Breast is joined, and then Eructations, Vomiting, and Heart-burn. To these frequently are join'd an Oppression of the Intestines, with Pain, Constriction, and sometimes Heat ; an interrupted and freight Respiration ; frequent Oscitation, (*Yawning*) Head-ach, Vertigo, and sometimes Dejectedness ; frequent and sudden Dimness of Sight, Paleness of the Face, and, after some time, an universal Imbecillity and Lowness.

These Symptoms, perhaps, never appear all at the same time, in the same Person, but frequently a great many of them.

From the Time that these internal Symptoms appear, there is little or no *Gout* in the Extremities. The Patient, who before was confin'd to his Bed, can now get up and walk about with great Ease. Mean time, the internal Complaints grow daily worse and worse ; and the Patient, worn out with want of Food, Languors, and Pain, after some Months miserably spent, dies, unless the Weather changing from immoderately cold, to warm and mild, or proper Medicines, restore a regular Fit of the *Gout*.

This *Gout* in the Stomach afflicts old People most frequently ; however, young People often have it, probably, from their Carelessness and Licentiousness in point of Diet, because these generally fall into it, immediately after an Error in either Eating or Drinking.

Tho' this Distemper happens at any time of the Year, yet 'tis most frequent in Autumn, which may be owing, in some measure, to Fruits eaten at that Season, and lying in a State of Putrefaction in the Intestinal Tube.

Sometimes these Symptoms will happen, without any Cause so evident as is above specify'd ; sometimes with a regular Fit ; and sometimes at a greater Distance from its Interruption.

Sometimes old People, now grown sober and abstemious, but who have drank hard, and lived freely in their Youth, are subject to Hypochondriacal Disorders, which are somewhat like *gouty* Symptoms, as perpetual Languors, Eructations, Anxieties, Dejectedness, sometimes Pain, and other Disorders of the Stomach. Now, in order to enable us to distinguish these from the *Gout*, we are to weigh the Circumstances attending, as the Manner in which they seize the Patient, their Vehemence, and the Intervals, and then the Case will be pretty plain.

It makes no Difference in these Cases, whether the *Gout*, leaving the Intestines, goes directly into the Stomach ; or whether

it takes a round-about Way, seizing first the Fauces, some contus'd Part, or any other Place ; nor whether it immediately follows the fix'd or erratic *Gout*.

It is farther observable, that such as have an hereditary *Gout*, are more subject to these Disorders than others ; those who are born of old Parents, than those born of young ones ; those who have a bad Appetite, than those who enjoy a good one ; those who have a languid, cold *Gout*, than those who have a hot, sharp, and painful one.

The C U R E.

The Curative Indication is to relieve, as soon as safely may be, the Stomach, and to free it from the *Gout* : And, in order to this, two things are requisite :

First, To remove all Impurities from the Stomach, which attract and detain the *Gout* in its Coats, by proper Vomits or Purges.

Secondly, After this is done, or omitted, if not necessary, to drive the *Gout* from the Stomach into the Extremities.

If a Shortness, or Difficulty in Breathing, a Gravity and Inflation of the Stomach, and particularly an Eructation, Nausea, or Vomiting, are troublesome, a gentle, but effectual Vomit will be necessary ; provided the Patient has sufficient Strength, and there are no Reasons to the contrary.

A great deal of Caution is necessary in making Choice of a proper Emetic ; for, on the one hand, those which are too languid to operate well, are trifling ; and, on the other, those which operate with too much Violence, are dangerous.

For such as vomit easily, an Infusion of green Tea-leaves, or the Tops of *Carduus Benedictus*, is sufficient, drank so as to vomit four, five, or six times, and in the Quantity of eight, ten, or twelve Pints in the Whole, if the Patient can bear it.

Those who are not sufficiently affected by this sort of Vomit, should take a proper Quantity of Salt of Vitriol in every, every other, or every third Pint of the Infusion.

Those who vomit with more Difficulty, should take Wine, or Oxymel of Squills, or equal Parts of both, in the Quantity of two or three Ounces together ; and, half an Hour after taking it, should work it off with some simple or bitter Posset-drink.

But those who either cannot, or will not, drink a sufficient Quantity of Posset-drink, warm Water, or some other Liquid, should never take any officinal Emetic ; for, by this means, there would be a great Quantity of Humours invited into the Stomach, and none discharg'd out of it, which would injure the Patient.

Sometimes neither Posset-drinks, Decoctions, nor any other Medicines of this Kind, can safely be given the Patient, because they give him violent Gripes and Spasms, especially Hard-drinkers.

The Reason of this seems to be, because they are too cold for the Stomach.

In this Case *Musgrave* says he has saved many Patients from the Jaws of Death, by giving Quantities of Wine as an Emetic, but which is, at the same time, a good Cardiac.

The Matter evacuated by Vomit is sometimes bilious, sometimes crude, especially after a Debauch of Eating or Drinking.

The good Effects of a Vomit appear in an Amendment of Respiration, and a Removal of the Gravity of the Breast.

And sometimes it happens, that the very Efforts of Vomiting, and the Agitation of the Blood caus'd thereby, drive the *Gout* from the Stomach, and it immediately falls on the Extremities.

An Hour after the Vomit, especially if promoted by any of the Officinals, a Clyster should be administer'd, in order to carry the Remains of it out of the Intestines ; and at Night a Bolus, with *Venice-treacle*, and the Countess of Kent's Powder, with a Draught of burnt Wine, should be exhibited. After this, let the Patient take, three or four times a Day, a Draught of bitter Wine, with a Scruple or half a Dram of the Countess of Kent's Powder, till it is time to purge him.

After one Day's Interval from the Vomit, provided the Patient has sufficient Strength, he should be purged. But in case of too great Weakness, this should be deferr'd a little ; however, as soon as possible, a Purge should be given, such a one as will sufficiently clear the Intestines, without causing a Hypercatharsis : For 'tis a certain Rule, that the Cure of this anomalous *Gout* is most likely to succeed, if 'tis begun by clearing the Stomach and Intestines.

Proper Purges on this Occasion are,

Tinctura Sacra, in the Quantity of three or four Ounces.

Pill Rudi ; Dose half a Dram, or two Scruples.

Earl of Warwick's Powder ; Dose about half a Dram.

Manna and Salts dissolved, with an Addition of *Daffy's Elixir*.

If the Purge does not operate in six Hours, it will be proper to give a Clyster.

A R T

At Night, let the Patient take such a Bolus as after the Vomit.

Sometimes it happens, that after even sufficient Vomiting and Purging, a troublesome Nausea remains, insomuch that all Medicines are thrown off the Stomach, as soon as taken, by Vomit. This is probably caused by the Arthritic Matter lodg'd in the Coats of the Stomach. In order to prevent this, exhibit about ten Drops of *Liquid Laudanum*, in two Drams of *Strong Cinnamon* or *Wormwood-water*, or *Spirit of Mint*, every fourth, fifth, or sixth Hour; that is, in such a Dose, and at such Intervals, as will stop the Vomiting, and give the Stomach Power to retain the Medicines destin'd to expel the Gout, which should be given in the Intervals betwixt the Doses of *Laudanum*: For Example, if the *Laudanum* is given at six and twelve, the other Medicines should be administer'd at three and nine. As soon as there is no farther Occasion for the *Laudanum*, is must be omitted, being then prejudicial.

What has been hitherto said about Evacuations, must be understood of such as have Occasion for both Vomiting and Purging, and Strength sufficient to bear it: But when there is no Occasion for it, as it happens when this anomalous Gout is brought upon the Stomach by Grief, or when there is a Deficiency of Strength, we must begin with Medicines that drive the Gout from the Stomach, omitting these Evacuations.

Steel has a peculiar Excellence in driving the Gout from the Stomach.

Musgrave recommends the following Forms:

Take either of *Gascogn's Powder*, or the *Pulvis Purpureus*, or *Gau Stoe*, or the *Pulvis Ruber Exoniensis*, a Scruple, or half a Dram; of *Virginian Snake-root*, ten Grains; *Alcohol Martis*, five Grains. Mix and make a Powder.

Instead of *Virginian Snake-root*, *Gentian*, *Zedoary*, or *Contrayerva-root* may be used in the same or a larger Quantity.

Take of the compound *Anum-powder*, and *Pulvis Ruber Exoniensis*, each a Scruple; *Alcohol Martis*, five Grains. Make a Powder. Or,

Take of *Species Diambra*, (or *Aromaticum Rosatum*) and *Gascogn's Powder*, a Scruple, or half a Dram; *Alcohol Martis*, five Grains. Mix and make a Powder. Or,

Take of *Ginger* candy'd in the *Indies*, a Scruple (or *Pods of Pepper* candy'd, six Grains); *Pulvis Purpureus*, a Scruple, or half a Dram; *Alcohol Martis*, five Grains; *Syrup of Wormwood*, a sufficient Quantity to make a Bolus. Or,

Take of *Species Diambra*, and *Lapis Contrayerva*, in Powder, each a Scruple; *Alcohol Martis*, five Grains; *Confection of Kermes*, enough to make a Bolus. Or,

Take of the *Species* call'd *Aromaticum Rosatum*, (or *Dianthus*) two Scruples; *Flowers of Sal Ammoniac*, ten Grains; *Syrup of Cloves*, enough to make a Bolus. Or,

Take of the *Conserve of Roman Wormwood* and *Gascogn's Powder*, each a Scruple; *Oil of Caraway-seeds*, one Drop; *Alcohol Martis*, five Grains; *Syrup of Citron-peel*, enough to make a Bolus. Or,

Take of *Tracle*, (or *Mithridate*, or the *Electuarium Stomachicum* of *Fuller*) and of *Gascogn's Powder*, each a Scruple; *Alcohol Martis*, five Grains; *Syrup of Mint*, enough to make a Bolus. Or,

Take of *Camphire*, five Grains; of the *Powder of Contrayerva-root*, fifteen Grains; of the *Extract of Rue*, a sufficient Quantity. Form into Pills. Or,

Take of the *Powder of Long-pepper* (or of the *Species Diatrian Piperis*) five Grains; *Gentian Powder*, half a Scruple; *Myrrh*, five Grains; *Extract of the lesser Centaury*, a sufficient Quantity. Form into Pills. Or,

Take of the *Powder of Virginian Snake-root*, one Scruple; of *Alcohol Martis*, five Grains; of *Syrup of Oranges*, a sufficient Quantity. Form into Pills.

With every Bolus, or Dose of the Powder or Pills, a Draught of the following Julap is to be taken:

Take of the *Waters of Catiaus*, *Mint*, *Alexiterial Milk-water*, compound *Gentian-water*, compound *Wormwood-water*, or *Strong Cinnamon-water*, each four Ounces; prepar'd *Pearls*, two Scruples; *Sugar*, a sufficient Quantity. Make into a Julap.

The Chymical Oils incorporated with the Julap, by means of *Sugar*, render it much more efficacious than it would otherwise be. For a liquid Form I recommend the following Infusions:

Take of *Zedoary-root*, of *Gentian*, of the *Tops of Roman Wormwood*, of *Agmony*, or *Marth-trefoil*, each two

A R T

Drams; *Cochineal*, one Scruple; *Orange-pill*, two Scruples. Infuse in two Pounds of *Red Port Wine*, or *Spanish Wine*, till the Wine is sufficiently impregnated. Then strain off for Use. The Dose is two or three Ounces.

After the same manner Infusions may be prepar'd from other Aromatics, as the *Cortex Winteranus*, *Cubebs*, the *Seeds of Cardamoms*, *Anise*, *Caraway*, *sweet Fennil*, and *Scurvy-grafs*.

Every Draught of bitter or aromatic Wine should have ten Drops of *Tincture of Steel*, or else *Alcohol Martis* taken with it.

The Poor may readily have an Infusion of *Garlick*, *Saffron*, *Ginger* rasp'd, with the *Tops of Roman Wormwood*.

It sometimes happens that the Patient cannot take Medicines in any solid Form, or by way of Infusion; and in such Case *Spirit of Mint*, *Juniper*, or *Wormwood*, may be both useful and serviceable. The *Aqua Hispanorum Arthrica* is much esteemed by some, the Preparation of which see above.

After sufficient Purging, *Musgrave* recommends the Use of the above described Medicines, or the like, in the following manner.

In the Morning, about Nine, a Draught of bitter Wine.

At Three in the Afternoon, Pills or Powders.

At Nine in the Evening, a Bolus, especially that with *Venice-treacle*.

At Three in the Morning, Powder or Pills.

The Patient must drink, after every Dose of each, a Draught of *Port Wine*, or of some proper Julap.

Sometimes it happens, that in two or three Days, by the Use of these Remedies given after this manner, the Gout is driven from the Stomach, and fixes upon the Joints. Sometimes this is not done without a long Perseverance; and sometimes not without other Remedies call'd in to our Assistance.

If, after persisting in the Use of these Medicines for two Days, no Pain or Tumor appears, it will then be prudent to apply to the Part where the Gout used formerly to fix, the *Cephalic Plaster*, with equal Parts of *Burgundy Pitch*; or the *Green Cerate*; or else a Blister to each Cubit or Leg, to invite the Humour downwards.

If these external and internal Remedies are not sufficient, with united Forces, to remove the Gout from the Stomach, the Strength of one or both must be increased, and other Aids must be called in, if necessary. The Dose, for Example, of the *Alcohol Martis* must be increased to ten Grains, and the *Tincture of Steel* to twenty Drops.

Moreover, every intermediate Hour betwixt the Doses of Medicines, let the Patient drink a Glass of *Port Wine*, so as to drink two or three Pints in twenty-four Hours, reckoning also what is taken with the Medicines. But this is principally serviceable to those who have used themselves to drink Quantities of Wine, and cannot well do without it.

Those who cannot drink such Quantities of Wine, should take some Drops of succinated *Spirit of Hartshorn* in a proper Julap, at the intermediate Hours.

Finally, the Use of these Medicines and Wine should be continued, till a Heat and Orgasm is raised in the Blood, and the Stomach is relieved, unless there should be some great Reason to discontinue them sooner.

At the same time, the Force of the internal Applications should be increased, and that till the gouty Humour is expell'd, and a Tumor is raised in some external Part, proper to receive the Gout. For this purpose, the Extremities may be wrapp'd in a Sheep-skin just taken off.

But nothing answers the End surer or sooner, than an acrid and stimulating *Phaenigma* apply'd very hot to a proper Part, and renew'd as it grows cool, whilst the Tumor is rising.

Those who are too nice to bear the Smell of a Sheep-skin, or too tender to bear the Pain of the *Phaenigma*, may use a hot Brick or Plate of Iron, wrapt up in Linen, and apply'd to the Part.

During the whole Course of this Method, the Patient should keep in Bed, or in his Chamber, and guard particularly against Cold.

Mean time let the Patient eat *Panada*, *Jelly of Hartshorn*, or *Chicken-broth*, or some such Food which is thin and easy of Digestion.

If the Pain thus raised should be so intolerable as to cause a *Lipthymia*, something of the Force of Medicines, and stimulating Applications, may be abated.

If the Fever should run too high, the Dose of the *Cardiacs* should be lessen'd, or they should be entirely omitted. Let the Patient drink as much white Decoction as he pleases, to temperate his Heat.

As soon as a sufficient Orgasm is excited in the Blood, the gouty Matter generally fixes where the external Applications invite it, upon the Extremities; insomuch, that sometimes in an Hour's Time after the Application of the *Phaenigma*, a Tumor will appear.

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Mean time, such a Fomentation as the following should be apply'd to the Abdomen twice or three times a Day, by means of flanel Stups.

Take of the Tops of common Wormwood, Mint, Red Rose-leaves, and Chamomile-flowers, each half an Ounce ; of Anise and Caraway-seeds, each two Drams ; Powder of Cinnamon, Cubebs, and Cloves, each one Scruple ; common Spirit of Wine, half a Pound ; of Red Port Wine, one Pint and an half. Let them macerate for three or four Hours in a well-stopt Glas plac'd in *Balneo Mariæ*. Let the strain'd Liquor be apply'd as hot as possible. Or, let such a Plaister as this be worn constantly on the Abdomen.

Take of Japan Earth, Balsam of Chili or Peru, each half a Dram ; Gum Galbanum, a Dram ; Burgundy Pitch, two Drams ; of the Magisterial Stomach-plaister, half an Ounce ; of Chymical Oil of Cinnamon and Nutmegs, each two Drops.

These Applications are of most Use after Purging, and that in those Constitutions which are enervated with Age, or the Distemper : However, the Physician is to take care, lest, in sanguine and robust People, these Applications do not rather invite the Gout to the Part, than defend against it.

As soon as a considerable Tumor is rais'd, *Musgrave* advises a Blister to be laid on the Part, to evacuate the Humour, lest it should return into the Blood. These sometimes discharge a vast Quantity, and continue running a great while, inflaming the Skin, and causing an Itching ; insomuch that it is not to be doubted but that the arthritic Poison is discharg'd with the Serum.

As soon as ever the Tumor and Pain are sufficiently rais'd, the Dose of the Medicines is to be decreased, and not given so often.

But if it should happen, that by reason of the Inclemency of the Air, or the Coldness of the Season, or some Error in Eating or Drinking, the Gout should leave the Extremities, and return to the Stomach, which is often the Case, the Cause of the Relapse must be diligently inquir'd into, and immediately removed.

If fresh Crudities are collected in the Stomach, they must be evacuated by a lenient, and very gentle Purge.

If the Skin is contracted by Cold, it must be relax'd by external Warmth, and warm Cloathing. In both these Cases, internal Medicines must be plentifully administer'd.

Podagragogue Medicines are requir'd so strong, and in so great Quantities, in no Case, as in a Relapse, or where the Body is loaded with Crudities, which cannot be purged off by reason of the Weakness of the Patient, or the long Continuance of the Disease. In these Cases, the Medicines should be composed of Steel, Ginger, and Pepper, and full of volatile Salts ; and should be taken in much greater Quantities, than above directed ; and even then they will sometimes fail us, and the Patient will die sometimes unexpectedly, complaining all the while of an inexplicable Depression of Spirits, and Coldness of the Stomach. Sometimes, in the Irregularities of the *wandering Gout*, it is sufficient to reduce the Gout to the Intestines : And sometimes 'tis even sufficient to free the Stomach from the gouty Matter, tho' it is only reforc'd and retain'd in the Blood. But in the Irregularities of the *fix'd Gout*, the most desirable Method is to have the Gout fix'd upon the Extremities.

It is entertaining to observe, that as the Pain, Tumor, and Symptoms of a regular Gout appear and increase, the Pain of the Stomach, Nausea, Cardialgia, and other Symptoms, disappear ; to which succeed Hunger, good Digestion, a healthful Lustre of the Eyes, and other Signs of returning Health.

In order to guard against these irregular Fits, the Use of the Steel-waters is very good, drank properly, and for a long time ; to which may be added, such Stomachics as cause Hunger and Digestion ; particularly the *Conserves of Roman Wormwood, Red Roses, or Hips* ; the *compound Powder of Arum* ; *Salt of Steel*, and *Ens Veneris*. Mean time, Care must be taken to avoid Indigestions, Cold, and all evident Causes of these Irregularities.

It is also useful to have an Issue in the Arm, or below the Knee, according as the Gout is more subject to fix on the Hands or Feet.

Musgrave observes, that Affections of the Mind will sometimes make the Gout recede from the Extremities, and fix upon the Stomach, and gives a Case to this Purpose.

He also gives some Cases, which prove that cold Weather and Frost will sometimes prevent the Gout from falling on the Extremities, especially in old People ; or make it recede.

The ARTHRITIC COLIC.

The *Arthritic Colic* is very frequent, and extremely painful, and has its Seat in the whole intestinal Tube from the *Stomach* to the *Anus*, tho' not in every Part at the same time ;

VOL. I.

and it often happens, that the *Stomach* suffers at the same time.

Both the fixed and wandering *Gout*, the regular and irregular, the primogenial and symptomatic, sometimes appear in the Shape of the *Colic* : But principally that kind of symptomatic *Gout*, which begins originally with the *Colic* ; for the Seat of this is somewhat ambiguous, fixing alternately on the Extremities and Intestines. This very often seizes upon old and infirm People, and sometimes affects those of Athletic Constitutions, who have not yet passed the Meridian of Life.

When a Person has been for a long time used to have regular Fits of the *Gout* at Intervals, and now grows old, Nature begins to leave off these Paroxysms, and gives no Fit at all, or very seldom, or else little and short ones, either thro' Weakness, or some other Cause, which must diligently be inquir'd into. And then an Evil of another Kind, either sooner or later, generally seizes upon the internal Parts.

First, the Patient perceives an universal Indisposition, and Loss of Appetite, and frequently a Nausea and Pain in the Intestines, which is usually fixed to some one Point of the Abdomen, generally about the Navel. Another Symptom is an Oppression and Heaviness of the Breast, as if it was press'd by a Weight. This happens to most of those that are afflicted with the *Colic*, and is extremely troublesome.

These two Symptoms, Pain in the Abdomen, and Oppression of the Breast, may be esteem'd the primary Symptoms. The secondary are, a Distention of the Piacordia, Murmurs in the Intestines, Eructations, Vomiting of Matter generally bilious, and Costiveness. To these are to be join'd some others, which happen only sympathetically, as Languor of the Eyes, Dejection of the Spirits, Want of Sleep, Indolence, Anxiety ; and if the Distemper continues long, a Weakness, and Emaciation of the whole Body.

This often, tho' not always, begins in Autumn, and, without proper Relief, miserably afflicts the Patient all Winter following. For from the first seizing of the Intestines, he languishes and is oppress'd with Wind, Uneasiness, and Pain, lies awake all Night, and laments himself all Day, till at last, depriv'd of Sleep, Food, and all the Refreshments of Life, weary'd with perpetual Strainings to vomit, enervated and worn out with Pain, and extremely emaciated, Death, sooner or later, frees him from his Torments.

It seems to be very plain, that the *gouty Matter* is the Cause of all these Disorders. But these Symptoms, particularly the aforesaid Pain in the Belly, and Heaviness of the Breast, give a great Light into the Case ; yet as these are not so peculiar to the *gouty Colic*, but that they sometimes appear in *Colics* of another Kind, we must take the Diagnostic from the preceding Distemper, that is, the *Regular Gout* : We must therefore observe, if the Patient has lately had a Fit, whether it has suddenly remitted, or gone off ; and whether the *Colic* immediately follow'd this Intermision. And from these Circumstances we may easily judge of the Nature of the *Colic*.

The external Causes of the *Colic* are Cold, too tight Shoes, or any sort of Ligatures, repellent Plaisters, Unguents, or Cataplasms.

The internal Causes are, a natural Imbecillity of the Intestines ; an Accumulation of Impurities in the Viscera, which, being discharged from the Liver, Pancreas, and other Glands that empty themselves into the Intestines, invite the *gouty Humour* to those Parts by their Stimulus, just in the same manner as stimulating Applications do to the Feet. And Crudities from the Stomach act in just the same manner. But no Impurities are more frequent here than those which are bilious, as the Stools, and what is thrown up by Vomit, evidently shew. Amongst the internal Causes, may also be reckon'd the eating or drinking improper Things ; as Fruit, too sharp Cyder taken in large Quantities, or any other Error in point of Aliment, especially those that are of a cold Nature.

This *Arthritic Colic* is often fatal, and always dangerous. If the Heaviness in the Breast, and Pain in the Intestines, especially if it is pungent, continue long, 'tis a bad Sign, and the Patient generally grows gradually worse and worse, till he dies.

There is seldom any Safety till the *Gout* is expell'd into the Extremities, and even then, not in every Case, nor always. For tho' the Gout gives Pain in the Joints, yet, if the Mass of Humours remain within, the Hopes we have from this Pain are very precarious ; for the *Gout* is frequently invited thereby into the Intestines again, and destroys the Patient.

But if the Pain of the Intestines, Oppression of the Breast, and Costiveness, entirely vanish, and at the same time Pain appears in the Extremities, it gives a much better Prospect.

But if the Pains of the internal Parts entirely cease, the Appetite returns, and at the same time the Pain of the Intestines is considerable, the Patient in all Probability is out of all Danger.

In regard to the Cure, sofar as a bilious Fever sometimes accompanies this Disorder, regard must be had to the Fever and its Symptoms, as Thirst, Heat, Velocity of the Pulse, &c.

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Therefore, if Occasion requires, the first Step we take should be to bleed the Patient, but very sparingly, and only just so much as will prevent the Inflammation, lest, by taking away too much, we at the same time take away all Possibility of expelling the *Gout*.

Then, in case the Stomach is loaded with Crudities, the Patient should vomit, by means of Tea, or an Infusion of *Cardus Benedictus*; for it may not be advisable to give any stronger Emetic.

The Day after the Vomit, the Patient should be purged, if his Strength will permit it, or else two Days after, with *Extractum Rudii*, and *Resin of Jalap*, to which may be added, *Mercurius dulcis*; or with Syrup of Buckthorn, and Elixir *Solutus*; or, if the Fever is considerable, with a Solution of Manna, and purging Salts, in Barley-water; or by any other proper Purge. But no Purgative must be given at Night after it, unless in case of a Hypercatharsis, lest it should put a Stop to the Eruption of the *Gout* upon the Extremities.

Purging is here of the utmost Importance; for without it, and that too sufficiently, the Cure will be extremely perplex'd; and therefore Purging must be repeated, till the End of clearing the Intestines is answer'd.

Mean time, on the Days betwixt purging, the Patient must take the *Tellaceous Powder*, if the Intestines abound with an Acid; but if they abound with bile, a bitter Alterative Infusion is preferable.

This Work being finish'd, which is half the Cure, we are then to endeavour at the Expulsion of the *Gout*, and not sooner.

To this End, besides the Remedies mention'd above for this Purpose, there are some others, which have always been esteem'd good for the *Colic*; and Aromatics too are here good; and, with these, those above-mention'd may be very properly join'd.

What is here meant, are these following:

Powder of Zedoary-root.

Compound Powder of Arum-root.

The Pulvis Aurantiorum Compositus, and } of Fuller.

Pulvis Bezoardicus,

Species Diatriæ Piperis.

Simple Species of Calamint.

Species Diambrae, and Dianthus.

Electuarium e Baccis Lauri.

Mithridate.

Ginger, candied in the *Indies*, and its Syrup.

The Chymical Oils of Juniper, Cumin, Caraway, sweet Fennel, Anise, and such-like Carminatives and Aromatics.

Amongst Wines, the strong *Spanish* and *Portuguese* red Wines, either alone, or impregnated with Bitters, have the Preference.

Prepar'd in this manner, we are to attempt removing the *Gout* in the following manner, and endeavour to throw it upon the Extremities.

The Patient must be put to Bed, and must take a Powder, Bolus, or Dose of Pills, made after some of the following Forms:

Take *Gascoign's Powder*, a Scruple or half a Dram; Alcohol Martis, five Grains: Mix and make a Powder. Or,

Take of the Powder of Zedoary, half a Scruple; Species of Calamint, or *Diambra*, one Scruple; Alcohol Martis, five Grains: Reduce to a Powder.

The Forms of proper Boluses are these following:

Take of the Electuary of Bay-berries, or of Mithridate, of the compound Powder of Crabs-claws, each one Scruple, or one Scruple and an half; Alcohol Martis, five Grains; Syrup of Oranges, a sufficient Quantity: Make into a Bolus. Or,

Take of Ginger, candied in the *Indies*, compound Powder of Arum-root, each one Scruple, or one Scruple and an half; Alcohol Martis, five Grains; Syrup of Nutmegs, a sufficient Quantity: Make into a Bolus. Or,

Take of candied Nutmegs, and Species *Diambrae*, each one Scruple; Alcohol Martis, five Grains; Chymical Oil of Juniper, one Drop; Confection of Kermes, without Perlines, a sufficient Quantity: Make into a Bolus.

Or, the following Pills may be used:

Take of the Species, with the three Peppers, and Powder of *Virginian Snake-root*, each half a Scruple; Alcohol Martis, five Grains; Extract of Rue, a sufficient Quantity: Form into Pills.

After each Dose of these Medicines the Patient is to drink a Glass of *Spanish Wine*, or red Port; or a Draught of some of the following Julaps:

Take of *Cardus* and Mint-waters, of Alexiterial Milk-water, and compound Chamomile-water, each three

A R T

Ounces; Spirit of Juniper, half an Ounce, or a whole Ounce; prepar'd Pearls, half a Dram; the finest Sugar, a sufficient Quantity: Make into a Julap. Or,

Take of Alexiterial Milk-water, twelve Ounces; *Brunswic Mum*, four Ounces; prepar'd Pearls, half a Dram; and a sufficient Quantity of Sugar: Make into a Julap.

If the Patient likes a liquid Form better than any other, let him have a Draught of the following Infusion, with the Addition of Steel:

Take of Zedoary-root, Galangals, sweet Flag, and Tops of *Roman Wormwood*, each two Drams; Juniper-berries, and *English Saffron*, each one Dram: Infuse in two Pounds of *Spanish Wine*, till the Liquor is sufficiently impregnated; then let the Infusion be strain'd off.

Take three Ounces of this Infusion, and five Grains of *Alcohol Martis*, for a Draught: Let it be shaken before the Patient drinks it.

Let the Patient take some one of these Medicines every four, five, or six Hours; and in the Middle of the Intervals, betwixt each Dose, let him drink a Glass of one of the above-mention'd, or some other generous Wine, in as large a Quantity as he can with Safety.

This Rule is to be observ'd in regard to his Medicines, that they must be taken in such a Dose, and repeated so often, as is sufficient to remove the *Gout* to the Extremities, without raising any greater Degree of Fever, or any greater Orgasm in the Blood, than what is sufficient for this Purpose.

It sometimes happens, that, after Vomiting and Purging, the *Gout* discharges itself upon the Extremities, and becomes regular, especially in robust Constitutions; and then nothing remains farther to be done, but to take care, that it discharges all its Fury there, and that it remains where it is.

But as many Difficulties often occur, before the *gouty* Matter can be brought to fix upon the Extremities, it is necessary to point them out.

Sometimes, then, the Intestines are so contracted with Spasms, that very strong purging Medicines will have no Effect, nor in the least purge the Patient: In this Case, a Fomentation must be apply'd to the Abdomen, which must be occasionally repeated:

Take of the Tops of Southernwood, and Mugwort, each an Ounce; of the Roots of round Birthwort, and Chamomile-flowers, each two Ounces; of Bay-berries, an Ounce; of the Seeds of Caraway, and sweet Fennel, each half an Ounce: Boil in ten Pints of Spring-water to five; and to the strain'd Liquor add camphorated Spirits of Wine, a Pint. Make a Fomentation, to be apply'd, as hot as it can be endur'd, to the Region of the Belly.

After each Fomentation, let the following Liniment be rubb'd in:

Take of Soldiers Ointment, two Ounces; Oil of Turpentine or Tar, and Chymical Oil of *Rhodium*, each six Drops: Make into a Liniment.

Instead of using this, the whole Belly may be anointed with the *Galbanetum Paracelsi*, describ'd in *Riverius* from *Crato*, *Cap. de Colica*, and is as follows:

Take of Gum Elemi, Hedera, Galbanum, Oil of Bays, each equal Parts: Distil in a Retort by a Sand-heat; let the Water which comes over first, the clear Oil, and the thick Oil which comes over last, of the Consistence of Honey, be kept separate; the last of which is to be used.

It sometimes happens, especially in tender Constitutions, that, after purging, considerable spasmodic Contractions, and a great deal of Pain, will still remain, which is sometimes continual, and sometimes intermittent. These must be cur'd partly by the above describ'd Fomentations and Liniment, and partly by the following Clyster:

Take of *Canary Wine*, half a Pound; Electuary of Bay-berries, half an Ounce. This Clyster is to be retain'd as long as possible.

Sometimes the Intestines are so weak, that they will not bear Steel, but immediately throw off that, together with whatever other Medicines are join'd with it, by Stool. In such a Case, it would be advisable to give the other Medicines without the Steel.

Sometimes not only Steel, but even tellaceous Powders, will run off by Stool. When this happens, the *Diathora* must be stopp'd;

stopp'd; for there is no Hope of the regular Gout whilst that continues: And therefore we must, upon this Occasion, call in to our Assistance *Japan Earth*, *Chalk*, *Dragon's-blood*, *Venice Treacle*, *Electuary of Bay-berries*, and the above-mention'd Species taken from the Vegetable Kingdom, as also the Chymical Oils, in order to put a Stop to it.

As soon as a Medicine is found out which will agree with the Patient's Stomach, he must continue the Use of it for two or three Days; and if, in that Time, there is no Appearance of the Gout in the Extremities, we must call to our Assistance stimulating Plasters, Cerats, or Cataplasms: And even after the Gout appears in the Extremities, it will be convenient to continue the internal Medicines till it is entirely fix'd there, and has quite left the Intestines. And when this Point is gain'd, we should still continue the Medicines, either in half the former Dose, or else repeated half as often, for four, six, or eight Days; that is, till we have Reason to believe the Intestines out of Danger from any Revisit from the Gout.

Mean time, 'tis very agreeable to observe, that as soon as the Gout is once fix'd upon the Extremities, all the Complaints of the Intestines suddenly vanish, and a certain Sprightliness returns to the Eyes, and appears in the Countenance; as does also a good Appetite, and due Digestion.

During this whole Course the Patient should have a most exact Diet prescrib'd him.

Panada, Jelly of Hartshorn, of Ivory, Biscuit, Chicken-broth, are very proper; but Wine is particularly useful, either by itself, or mix'd with the White Decoction.

But very great things may be expected from a plentiful Use of Wine, in the Cases of such as have been much us'd to it. But the very best Sort is red Port, of which the Patient may be allow'd to drink from half a Pint to a Quart in a Day and a Night, as Occasion requires. Mean time, if there is any considerable Costiveness, which is very common, the Patient should, every other Day, have a lubricating Clyster, either of Oils, or Mutton-broths. It is to be observ'd, that sometimes, tho' the Intestines are entirely deliver'd from the Gout, and it is driven into the Extremities, the Belly is inflated with Wind, and is still full of Pain, so as to make the Patient almost out of Hopes of a Recovery. But as this is only owing to a Flatus, (*Wind*) and the Weakness which the Distemper has left, it may be generally cur'd by this Clyster, continued every Day, or every other Day.

In this Case also the bitter Infusion, and such sort of Stomachics as increase the Appetite, and mend Digestion, are very useful.

In order to prevent Returns of this Disorder, the Patient must eat sparingly, and do all he can to promote Digestion. He must frequently take some gentle Purge which is stomachic, and must use other stomachic and gently restraining Medicines.

The Mineral Waters, both purging and diuretic, have been of signal Service to many; and many others have found great Benefit by taking, twice or three times a Year, either the *Alford Waters*, purging Salts, or *Tartarum Laxans*, dissolved in Barley-water. Some have found Relief by mixing the purging with the diuretic Waters. The Bath Waters have long been esteem'd good against the Colic, and are particularly useful in this Species of it. In the Intervals betwixt the Use of the diuretic Water, some proper Alteratives are to be taken; as, at ten in the Morning, a Draught of a bitter Infusion, made with white Port; as also every Day, after Dinner, some Spoonfuls of the same Wine alone. At five in the Afternoon a Dram of the following Electuary, with any convenient Vehicle, will be proper:

Take of the Conserve of Hips, or of red Roses, pass'd thro' a Sierce, *Roman Wormwood*, Ginger candied in the *Indies*, each half an Ounce; Salt of Steel, four Scruples; Syrup of Ginger, one Ounce and a half; Chymical Oil of Cinnamon, five Drops: Make into an Electuary. Or,

Take of Hedychoi Troches, and Conserve of Orange-peel, each half an Ounce; Salt of Steel, one Dram; Species Diambrae, one Dram; Alcohol Martia, three Drams; Syrup of Wormwood, a sufficient Quantity: Make into an Electuary.

But so far as this Colic generally takes its Rise from external Cold, we are to guard against it by warm Cloathing, and avoiding the Inclemencies of the Air.

It must be added, that People of an advanced Age, who have once had this Distemper, and have been hinder'd, either by their Business or Pleasures, from preventing a Return, have seldom fail'd to pay for this Neglect, either with their Health or Life.

Musgrave, in Confirmation of his Doctrine, very justly quotes a Passage of *Hippocrates*, from the sixth Book of Epidemics, Sect. 4. It runs thus, *ὅτι ἡντινένον ἐπὶ δὲ τῆς ἀφαιρέσεως τῆς γαστρῆς, ἢ τοῦ σπλῆνός, ἐπὶ δὲ τῆς ἐντέρας, ἐπὶ τοῦ σπλῆνός.* A

certain Person, having a Pain in his Intestines, on the Right Side, being seiz'd with the Gout, became better; but when he was cured of this, he relaps'd into his former Pain, and grew worse.

This *Hippocrates* repeats at the latter End of his Treatise περὶ χυμῶν.

Musgrave might also have taken Notice, in Confirmation of his Practice, that *Hippocrates*, in the second Book of Epidemics, directs, when there is a slight Ileus, (*εἰλεῖς*) that is, Pain in the Ileum, the Patient must drink a reasonable Quantity of unmix'd Wine, till he falls asleep, or perceives a Pain in his Legs.

If there is a thick white Crust upon the Surface of the Blood, after 'tis drawn away, it abundantly confirms this Colic to be Arthritic; because in the genuine Colic it is not usually so.

However, in an Inflammation of the Intestines, which is often mistaken for the Colic, the Blood generally appears fizy.

In History 3. Musgrave gives an Account of an old gouty and paralytic Gentleman, who, upon a Suppression of a Discharge of the Saliva, which had for a long time been considerable, and a Cessation of the Gout, and Swelling of the Feet, which had for many Years been very great, had this Colic; but upon purging, and taking *Goddard's Drops*, and *Alcohol Martis*, the Gout, Salivation, and Swelling of the Feet, return'd, and he was cured of the Colic.

The Purge he took was Calomel, with Resin of Jalap, and *Extractum Ruditii*.

Hist. 8. he tells us of a Gentleman who was afflicted with the Gout for twenty Years, who, every Autumn that he mis'd having the Gout, had an Epiphora, which discharged an acrid and pungent Serum from the Eyes, for six or eight Weeks.

AN ARTHRITIC DIARRHOEA.

If a Person, long us'd to the Gout, in the midst of his Fit, falls into a Diarrhoea, and at the same time the Pain and external Swelling decrease, and soon entirely vanish, 'tis very evident, that this Diarrhoea is Arthritic.

It also frequently happens, that before the Patient feels Pain in the Joints, the Diarrhoea diverts the gouty Humours from the Extremities, where it would otherwise fall, and carries it off by the Intestines.

This Diarrhoea, which anticipates the Fit of the Gout, is frequently found to be salutary, Health and Vigour returning after it; but this happens only in good Constitutions, where the Fibres are robust, and the Spirits firm.

But the Cases where this Diarrhoea is most frequent are, when either a Purge has been given, or else when the Intestines are loaded with Crudities, which stimulate, and find a Passage for themselves, together with the gouty Matter.

The Event of this Diarrhoea is extremely uncertain; for if it stops in time, and is not excessive, it very often proves of Use, as it carries off the gouty Matter by a Way that is safe enough, tho' not the most common; and it has this Advantage attending it, that the Paroxysm does not return of a long time after it.

But in those whose Viscera are debilitated by Debauchery, so as to render Nature incapable of moderating the Crisis, it sometimes becomes so excessive as to destroy the Patient.

In this Diarrhoea nothing is more foolish nor dangerous, than to do too much; for an officious Diligence disturbs Nature, and interrupts her in the Work she has begun, when it is better to leave her to herself, and permit that to be discharged, which, if retain'd, would do Mischief.

But if the Diarrhoea becomes too excessive, and is too great for the Patient's Strength, it must be moderated by Astringents, and the Strength must be kept up by Cardiacs.

But whether the Diarrhoea stops of its own Accord, or is stopp'd by Medicines, after some time the Relicts are to be purg'd off by the Purging Waters, with an Addition of *Tartarum Laxans*, or Manna, if the Case requires such Addition.

If this Diarrhoea should happen from taking a Purge, Medicine in this Case, as in the former, is unnecessary, we having only to guard against an *Hypercatarrhis*.

But in case this Diarrhoea arises from Crudities, which is, of all, the most dangerous Case, it must be treated in a different manner. Here it sometimes happens, that the Stomach is loaded, and then a Vomit of Tea, or Carduus, may be proper. After which, or without one, a gentle Purge should be given: And then recourse must be had to Restraining, and such Medicines as will moderate the Diarrhoea. Let the Patient take, every fourth, fifth, or sixth Hour, a Bolus of

Diacordium, Species of the Confection of Hyacinth, astringent Crocus of Mars, *Japan Earth*, and Syrup of Roses. After which let him drink a Draught of the Cretaceous Julap.

Let the Patient have also a Clyster of Canary Wine, Jelly of Starch, or Diacordium.

Let the Belly also be frequently fomented with a Decoction of the Roots of Bistort, Tormentil, and Balaustines, made in strong Beer.

Let his Drink be the White Decoction, or an Infusion of red Roses, and sometimes some red Wine burnt.

If the Pulse will permit, Opiates are of excellent Use, as a few Drops of Laudanum, or about a Grain of Opium, with half a Dram or two Scruples of *Venice Treacle*.

If there should be any Danger of the Diarrhoea running into a Dysentery, let the following Emulsion be taken :

Take of calcin'd Hartshorn, half an Ounce ; Gum *Arabic*, and Tragacanth, each two Drams : Boil in three Pounds of Rice water, of the third Decoction, till they are reduced to two. Let the strain'd Liquor be pour'd upon decocted sweet Almonds, and white Poppy-seeds, during the Time they are bruising : Then strain the Liquor a second time, and give it an aromatic Flavour with strong Cinnamon-water : Then edulcorate it with Sugar.

When the Patient is much reduc'd by the Diarrhoea, Vomiting and Purging must be omitted ; and Cardiacs and Astringents only must be used.

But to whatever Cause this *Arthritic Diarrhoea* owes its Origin, the best and most pleasant prophylactic Cure is that by the Steel-waters, to which some Preparation of Steel should be added ; and, amongst all the Preparations of Steel, the *Alcohol Martis* is the best.

In his sixth *Histroy*, *Musgrave* mentions frequent Oscitation as a Fore-runner of a *gouty* Diarrhoea, in a certain Person he mentions.

AN ARTHRITIC DYSENTERY.

An *Arthritic Dysentery* principally seizes upon those who have a thin Habit of Body, and particularly weak Intestines, and are used to the *Gout*.

An *Arthritic Colic* generally precedes this Distemper, and when the Fibres of the Intestines are weaken'd by frequent Fits of it, and either some external Cause forces the *gouty* Humour inward, or some internal Cause invites it thither, it falls with Fury on the Intestines, by the Cœliac and Mesenteric Arteries.

Hence arises a gnawing and eroding Pain, with a quick Pulse, and a small Fever. If, at the same time, there is any *Gout* in the Extremities, it immediately vanishes, and all flies to the Intestines ; and there, breaking the distended Arteries, the extravasated Blood is pour'd into the Intestines ; and is thence thrown out by the Anus, and sometimes by the Mouth, in the Quantity of a Pint, and sometimes two. Great Languors immediately succeed this, and Loss of Strength ; the Extremities grow cold, the Patient falls into frequent Deliquia, and his Life is in imminent Danger.

The Pain is eased by this Evacuation ; and if the Patient can sustain the Violence of the Fit, he grows easy, and is for some time free from any Fit of the *Gout* : For after the *gouty* Matter has been in this manner discharg'd, a new Fit cannot happen, till new Matter is form'd in the Blood.

This Distemper is not always content with one Visit, but oftentimes returns, and exactly resembles the *Gout* in regard to its Periods ; and sometimes the first time, sometimes at its Return, leaves an Ulcer or Abscess in the Intestines.

The Patient must rest either in Bed, or in a Chair, whilst the Paroxysm lasts, lest the Motion should exagitate the Blood, and increase the Flux.

Mean time, it may be of vast Prejudice to give Cardiacs in Quantities large enough to inflame the Blood, and by that means increase the Disorder. They must therefore be carefully given, and only in such Proportion as is sufficient to support the Spirits, and keep off a Deliquium.

In case the Discharge becomes too considerable to be easily supported, it must be stopp'd by Laudanum : And therefore some Laudanum should be held upon the Tongue, and in the Mouth ; and must be continued in this manner till the Flux ceases ; for if it goes into the Stomach, it will immediately be return'd by Vomit.

Our Author has often found the White Decoction of great Service : It must be taken in small Quantities, and often ; and the Patient must take nothing else for some time, either of Food or Medicine.

As Care must be us'd, on one hand, that the Intestines are not too much open ; so, on the other, they must not be contracted ; and if the latter happens, they must be gently relax'd. It must be remember'd, that this Dysentery is critical, and that therefore an Error, on either Side, is attended with Inconveniences, so that a Medium is best ; and this Mediocrity must be discover'd and obtain'd by having a proper Regard to the Patient's Strength.

It often happens, that after the *Gout* is expell'd by these bloody Stools, all is easy and quiet ; but in case it happens otherwise, and the Dysentery continues, it is proper to give

such Remedies as will stop it, and contract the Wound of the Intestines. As,

Tincture of *Japan Earth*, dropp'd into the White Decoction, or into some vulnerary Decoction ; or the Balsam of *Luca-tellus*, with Olibanum, Mastich, Dragon's-blood, and the astringent Crocus of Mars ; or with the true Bole, in the Form of Pills ; or with Conserve of Hips, or red Roses, pass'd thro' a Sierce, the Species of the Confection of Hyacinth, with Syrup of dry'd Roses, in the Form of a Bolus, to be taken in the same Vehicle.

Let the Abdomen be fomented with Stuphs wrung out of a restraining Decoction, with an Addition of red Wine.

If the Vein, from whence the Blood is discharg'd, happens to be near the Anus, a Clyster of the Jelly of Starch, or some such gluish Medicine, should be injected, and retained for a long time. Mean time all Acids are to be avoided as pernicious, by reason of their Stimulus.

Let the Patient's Diet be Jelly of Hartshorn, or Ivory, or Calves Feet, poach'd Eggs, Rice boiled in Milk, or Cremor of Rice ; and such sort of things which nourish, incrassate, and agglutinate Wounds.

It is easy to perceive, that the Cure of this *Arthritic Dysentery* is very different from that of a common Dysentery ; for the latter requires repeated Purging, whereas the former seldom admits of any purging Medicines at all.

The *Tunbridge, Bampton*, or such sort of chalybeate Waters, are the best Medicines that can be used in order to guard against a Return, especially if some Preparation of Steel, with Restraining, are taken at the same time.

In *Hist.* 1. *Musgrave* tells us, he directed a Sheepskin, just taken off, to be apply'd to the Feet, in order to invite the *Gout* thither.

In *Hist.* 2. he gives an Instance of his directing *Venice Turpentine*, with Powder of Marshmallows, in a Bolus, twice a Day, in order to heal the Wound in the Intestines, which the Dysentery had made, or rather the *Gout*.

ARTHRITIC OR GOUTY ABSCESSSES OF THE INTESTINES, see under the Article ABSCESSUS.

ARTHRITIC MELANCHOLY.

This sort of Melancholy affects those People most, who are of soft, tender, and delicate Constitutions, who are naturally timorous, or who from any other Cause have been inclined to Melancholy from their Infancy. These, whilst they have regular Fits of the *Gout* in the Extremities, are, during the Intervals, very chearful and well ; but when the Paroxysms either altogether cease, or are insufficient to carry off the *gouty* Matter, but particularly when the *Gout* seizes upon the Stomach and Intestines, the Appetite and Digestion begin to be deprav'd. Then the Patient is troubled with Hypochondriac Wind, Murmurings in the Intestines, Distention of the Præcordia, and sometimes an almost continual Pain of the Intestines. Hence, by the Consent of Parts, the Brain and nervous System is affected, and the Patient becomes melancholy. Nothing can be more miserable than the State of these unfortunate People ; for they neither sleep nor eat, and are so dejected, as to be even weary of their Lives, and will not so much as hope to be ever in a better State.

No Species of the anomalous *Gout* is more chronical than this, nor scarce any more frequent. It generally begins about the forty-fifth or fiftieth Year, and seldom leaves the Patient entirely, unless Medicine effectually interposes ; but returns at Intervals, and those often very short ones. However, when the *Gout* is worse, this Melancholy is better, and *vice versa*.

Musgrave distinguishes between the *Melancholia Arthritica*, and the *Arthritis Melancholica* ; the former being, according to him, a *Gout* terminating in Melancholy ; the latter, Melancholy terminating in the *Gout*. The Cure is to begin with unloading the Stomach and Intestines of the Mass of undigested Humours contained therein, by a Vomit, if necessary, and Purges of the milder Sort, as Tea and Carduus Posset-drink for a Vomit ; as Rhubarb, the Tartar Pills of *Bontius*, the Stomachic Pills with the Gums, or something of this Kind, for a Purge.

The Evening after the Operation of the Purge, a Cardiac must be given instead of a Purgative ; and afterwards, when we come to Alteratives, they must be given in a Quantity sufficient to expel the *Gout* from the external Parts into the Extremities.

In order to prevent a Relapse, the Diuretic Waters must be drank regularly for a considerable time ; and if the *Gout* does not return regularly at Spring or Autumn, or both, spontaneously, Fits must be procured by Medicines proper for that Purpose. Mean time the Patient must be extremely regular in point of Diet ; a gentle Purge must also be frequently given, in order to carry off any undigested Remains of the Aliment. *Musgrave* recommends the following, which he calls *Pilule Melancholicæ*.

Take

Take of the Pills of *Macrus*, (in the old London Dispensatory) and of the Stomachic Pills, with the Gums, each one Dram and an half; of the Pills of *Rudius*, one Dram; Resin of *Jalap*, half a Dram; Chymical Oil of *Cinnamon*, ten Drops; Balsam of *Peru*, a sufficient Quantity: Form into a Pill.

The Dose is half a Dram, to be taken every Morning once a Month; or instead of these, the Laxative Tartar and Manna, each in the Quantity of half an Ounce or an Ounce, dissolved in a Quart of any purging Water, may be taken.

A Purgative must be given at Night after each of these Doses, taken by way of Prevention.

Nothing is more serviceable in this Case than Exercise, particularly Riding.

N. B. The Cases which *Musgrave* relates are worth observing, in one of which, in order to clear the Head, he recommends the following Snuff:

Take of the Stalks of Tobacco, one Dram; Tops of *Margoram*, *Rosemary*, and *Sage*, each half a Dram; Root of white *Hellebore*, one Scruple; Musk, two Grains: Of all these dry'd make a Powder for an Erhine.

AN ARTHRITIC SYNCOPÉ.

The Gout often causes a Syncope, especially after drinking cold and thin Liquors, or eating any thing which the Stomach is not able to digest.

In this Case the Patient first finds himself ill all over, then grows pale, and breaks out into a cold Sweat. His Pulse is weak, slow, and unequal, and sometimes intermits; at last he faints away, and loses all Sense and Motion. Mean time if there were any Signs of the Gout in the Extremities, it instantly retires, and the Patient dies, without immediate Assistance.

The best Medicines are Cardiacs in very large Doses, and a liquid Form, to be repeated often. *Musgrave* recommends the *Aqua Hispanorum Arthritica*: Or the following Julap:

Take of Compound Wormwood Water, twelve Ounces; Spirit of Mint, and Compound Spirit of Lavender, each two Ounces; and of the finest Sugar, a sufficient Quantity: Mix up into a Julap.

The Dose of this is half an Ounce, an Ounce, or two Ounces, to be repeated as Occasion requires.

With the first or second Dose of this may be given the following Bolus or Powder:

Take of *Venice Treacle*, half a Dram; Flowers of *Sal Ammoniac*, half a Scruple; Conserve of *Rosemary-flowers*, one Scruple; Syrup of *Citron-peel*, a sufficient Quantity: Make into a Bolus: Or,

Take of Powder of *Virginian Snake-root*, half a Scruple; *Species Diambra*, one Scruple, or one Scruple and an half; of *Long-pepper*, three, four, or five Grains; of Chymical Oil of *Cinnamon*, one Drop: Reduce to a Powder.

For want of these Medicines, burnt Brandy will answer the End; or succinated Spirit of Hartshorn may be added to the Cordial Waters, for the same Purpose.

Mean time Frictions must be used; and Stups immersed in hot Wine or Brandy must be applied to the *Scrobiculum Cordis*, and all over the *Abdomen*, which must frequently be renew'd.

This Method must be pursued till the Patient comes to himself, and is recovered, which however seldom happens till the Gout is forced into the Extremities, and fixes there.

If the Patient has eaten any thing difficult to digest, and is inclined to vomit, as soon as he comes a little to himself, it should be brought off his Stomach, by a Decoction of Tea or Carduus. But if he is so bad, that there is no Time to lose, he must drink a large Quantity of Wine, in a very little time, that it may answer the End of a Cardiac, and at the same time of a Vomit.

If these Fits return frequently, the Patient must always have some Cardiac Waters by him, to take as soon as he finds himself disordered.

These strong Waters, though extremely injurious to People in Health, are, however, excellent for old gouty People, who have been accustomed to drink Quantities of Wine, and are troubled with this sort of Syncope.

In a Case of this sort *Musgrave* gave a Patient a few Grains of *Alcohol Martis* with his Julap, after he began to complain of a Pain in his Foot; the Consequence of which was, that in a few Hours, before he had taken a Scruple, his Pulse became more quick and strong; he began to be very hot all over; the Hemorrhoidal Veins discharged some Blood; he had great Thirst, a violent Agitation of his Spirits, and Swelling with Redness in his great Toe.

VOL. I.

He then blistered him in several Places, and apply'd a Plaister to his Toe, made up of equal Parts of *Burgundy Pitch*, and *Cephalic Plaister*, and put the Whole of the Foot in a Sock of green Cerate, tying it on with a woollen Roller.

Soon afterwards the Gout seized his Shoulder, whilst he all along used the Cordial Waters internally; and in order to invite it thither, he apply'd to the Part affected a Plaister of Gum Caranna.

THE STONE IN THE KIDNEYS FROM THE GOUT.

This Distemper is easily distinguish'd from the *Arthritic Colic*; for in this there is no Difficulty of Breathing, no acute Pains about the umbilical Region, no Melancholy, nor Discharge of crude, acid, and bilious Matter by Vomit, which are Symptoms of the other.

The Method of Cure of the Stone, attended with the Gout, differs from the Cure of the Stone without it in some Particulars: For in the former, we must be very cautious of Bleeding, and of using acid Medicines; nor must we apply Fomentation, Liniments, and Cataplasms, to the Back, especially if the Patient has a Fit of the Gout at the same time.

But a Purgative may be given in such a Dose, and repeated so often, that the Pain may be eased without prejudicing the Head by driving the gouty Matter upon it.

But if the Stone happens in a gouty Constitution, without being accompanied with a Fit, the Method of Cure is different; for then the Patient must lose some Blood, especially if he is Plethoric; and soon after let him have the following Clyster:

Take of the common Clyster Decoction, and new Oil of sweet Almonds, each half a Pound; of *Venice Turpentine* dissolved with the Yolk of an Egg, one Ounce. Let it be injected.

Next Day give a Purge of Lenitive Electuary, or Rhubarb, or Manna, dissolved in a Decoction of Sena: At Night give as much of *Matthew's Pills*, as contains one Grain of Opium.

If the Pain is very violent, in order to relieve it, and prevent Spasms of the Intestines, a Purgative may be given a few Hours before the Purge; and if it does not operate, give a Clyster.

When the urinary Passages are by these means dilated, the Stone must be brought away by Opobalsamum, or the Balsam of Chili or Peru, taken two, three or four times a Day, in Syrup of Marshmallows, or the balsamic Syrup.

The Dose of Opobalsamum is half a Scruple.

Mean time the Patient may drink soft Ale like that commonly called *Gout-ale*, or Apozems made of the Roots of Marshmallows, Liquorice, and Eriago, Pearl Barley, &c. or other things of a like Nature, or Green Tea, or Emulsions made of sweet Almonds, and the above-mentioned Decoction or Apozem.

Musgrave recommends an Emulsion made of ten sweet Almonds, and two Pounds of the Infusion of Tea, with the Addition of Rose-water, or Cinnamon or Barley-water, and a sufficient Quantity of fine Sugar; or a proper Liqueur may be prepared of White-wine, Oil of sweet Almonds, and fine Sugar.

This Author recommends, by way of Prophylactic, *Bristol Waters*, taken with Opobalsamum, and some lubricating and diuretic Syrup; or for want of these Waters, green Tea every Morning.

It has however been found, that sometimes the Bristol Waters cause stony Concretions, and increase the Disorder.

Musgrave says, he knew one who in some measure kept himself free from the Stone, by taking three or four times a Year one Dram of *Venice Turpentine*, reduced to the Form of Pills by the Addition of Liquorice-powder; after which he drank some Pints of Small-beer or Posset-drink, and immediately rode four or five Miles upon a trotting Horse.

Lenient Purges must always precede Diuretics.

In case of a Dylury proceeding from Spasms of the urinary Duets, nothing is more efficacious than Opiates joined with Diuretics.

The Dose of Peruvian Balsam is ten Drops taken in a Spoonful of the balsamic Syrup twice, or at most three times, a Day.

AN ARTHRITIC ASTHMA.

Those People are subject to an *Arthritic Asthma*, who have a bad Conformation of the Breast and Organs of Respiration; and those whose Parents were Asthmatic, or Arthritic, or both, are most subject to this Disorder.

An Opiate improperly given, any thing that repels the Gout from the Extremities, a sudden Suppression of any habitual Evacuation, either of Blood, the Lochia, or from an Ulcer, cause this sort of Asthma; and it often happens, that an Asthma immediately follows a regular Gout, when the Fit has by any means

means been shortened; as a Fit of the *Gout* often cures an Asthma.

Arthritic Asthmas, like others, are of two Kinds, the dry and moist Asthma: In the former the Patient's Respiration is very short and difficult, gasping as it were for Breath, with a great Oppression of the Breast; mean time he has very little, if any Cough, and spits but little. Those who have used themselves to drink Brandy, and such spirituous Liquors, are most subject to this Sort.

In the moist Asthma the Patient coughs up generally a thick, viscid Matter, by which he is relieved, till a fresh Supply is furnished by the Blood. This commonly affects People of a thin, lax Habit, and principally in Autumn.

Musgrave says, the *Arthritic* Matter is cough'd up inviscated as it were in this Phlegm, inasmuch that he has known several *gouty* People preserved from more dangerous Distempers by this Discharge, when regular Fits on the Extremities have been wanting.

This Author imagines, that in a dry Asthma the *Arthritic* Matter is fixed upon the Membranes, Nerves, and Muscles of the Organs of Respiration; and in the moist Asthma, that the same Matter is mixed with the Serum of the Blood.

Sometimes the *Gout* appears originally in the Shape of an Asthma, with much the same Symptoms as those which attend a genuine Asthma, from which it is not easily distinguished, till in Process of Time the *Arthritic* Matter falling upon the Joints sets the Lungs at Liberty.

The Prognostics in an *Arthritic* Asthma are different from those in a genuine Asthma; for whereas in the latter young Men are said to be cured with Difficulty, and old ones not at all; in the former, Patients are more easily relieved, more frequently freed from it, and sometimes so as not to return again. However, the dry Asthma is much the most dangerous, and often suffocates those whom it seizes.

The Cure is to be attempted by Evacuations, or by forcing the *gouty* Matter upon the Extremities. Amongst Evacuations Bleeding is most proper for Plethoric People, and Purging for such as have indulged themselves in eating.

When the Strength will permit, take nine Ounces of Blood from the Patient; and soon after give a Clyster. The next Day give a Purge of Aloes, Pilulæ Cochiae, or some such Cathartic, without any Purgative at Night after its Operation.

After these Evacuations, Spirit of Hartshorn, Flowers of Sal Ammoniac, and such-like Volatiles, are of great Service in a dry *Arthritic* Asthma.

Take of Gascoign's Powder, and Conserve of Colts-foot, each one Scruple; Flowers of Sal Ammoniac, half a Scruple; of balsamic Syrup, a sufficient Quantity: Make a Bolus, to be taken every fifth or sixth Hour in a proper Vehicle.

In the moist *Arthritic* Asthma Vesicatories apply'd between the Shoulders very much relieve the Lungs. Preparations of Sulphur, such as the balsamic Tincture of the Flowers of Sulphur, dislodge the Phlegm, and at the same time expel the *Gout*. Gum Ammoniac, Gum Bdellium, Balsam of Peru of *Chili*, and of Capiivi, produce the same good Effect.

Give twenty Drops of the Tincture of Sulphur in a Spoonful of balsamic Syrup, and repeat the Dose every six, nine, or twelve Hours; or prescribe ten or fifteen Drops of the following Balsam in the same manner:

Take of the Tincture of Gum Guaiacum, and of Balsam of Peru, equal Parts: Mix together. *N. B.* This is like the Balsamum Polychreston.

Though Clysters and Purging may properly enough be repeated in a genuine Asthma, in the *Arthritic* Sort 'tis never to be prescribed more than once, for fear it should hinder the *gouty* Matter from falling upon the Extremities.

In both the dry and moist *Arthritic* Asthma, the Patient must persist in the above-mentioned Remedies, till his Lungs are easy, and he respires without Difficulty.

The Cough may sometimes be relieved by the common expectorating Medicines, such as Oil of sweet Almonds, Linseed Oil, the balsamic Syrup, or Syrup of Maiden-hair.

In case the Fit is very violent, and not to be relieved by the above-mentioned Remedies, give Oxymel of Squills, either by Spoonfuls at certain Intervals, or in a Dose sufficient to operate by way of Vomit, which helps to remove the *gouty* Matter to the Extremities; for *Musgrave* says, he has often known an irregular *Gout* made regular by one Vomit.

This Author recommends the Smoke of Tobacco, Coffee, and Frictions; but says Unguents and Liniments, which are recommended for a genuine Asthma, are here of no Service.

By way of Preservative, *Musgrave* recommends, in a moist Asthma, Diuretics and Antiasthmatics, after previous Cathartics, scapulary Illues, and Vesicatories, especially those made perpetual.

In the dry Asthma he recommends Steel joined with Antiasthmatics, as Gum Ammoniac, &c.

In both Sorts fresh Air is of great Service; as is also an exact Regimen, avoiding various Kinds of Diet, and keeping to simple Aliment.

The Piles are of great Relief in this Disorder.

Some Patients breathe with most Difficulty when the Wind is in the East or North-east. 'Tis not proper for Patients under any of these Disorders to eat Suppers.

An ARTHRITIC CATARRH, COUGH, and PERIPNEUMONY.

Those are most subject to these Disorders who have naturally a bad Conformation of the Breast, and a tender Constitution, or whose Lungs have been hurt by a Blow, Fall, Vociferation, or violent Exercise; or those whose Parents were Consumptive or Asthmatic.

'Tis very difficult to distinguish when the *Gout* is the Cause of these Distempers in such as have never had it in their Extremities; but as the Distempers of the Parents may give us some Light in this Affair, 'tis prudent to have them always in view.

When People that have been used to regular Fits of the *Gout* have them more seldom or more mild than usual, or the Fit is interrupted by an external Cause, as improper Applications to the Part, Cold, &c. there frequently comes on a Heaviness of the Breast, and Infarction, Shortness of Breath, a Titillation of the Aspera Arteria, a Cough, and thereby a Discharge of Matter, at first very thin, and afterwards more thick; and these Circumstances assure us, that the *Gout* is the Cause of the Disorder.

Sometimes, though the Fit is not interrupted, these Accidents will happen, because it is too mild; and this may make it doubtful, whether the *Gout* is the Cause or not; but a regular Fit returning some time after with greater Violence, frequently manifests the true Cause.

Old Men, and those of a middle Age, are most subject to these *gouty* Disorders of the Lungs; but young Men seldom are troubled with them.

Women are seldom affected with these *gouty* Symptoms before they have born Children, or before the Catamenia cease.

The Spitting is, at first, but small in Quantity, and that thin; but in a little time increases, and that so much, as to oppress the Breast greatly, and stuff the Lungs, at the same time causing Hoarseness, and Difficulty of Breathing; and if it lasts for a long time, wastes and weakens the Patient, and at last destroys him.

The *Gout* in the Extremities decreases, as the Spitting increases.

Though this Discharge by Spitting, provided it is not immoderate, is found generally to be of Service; yet in extreme old Age 'tis sometimes too great, so as to weaken, and at last destroy the Patient; but this seldom happens.

All these Disorders are relieved by a regular Fit falling upon the Extremities; and as that increases, these decrease, and *vice versa*.

A Cough is the most frequent of all these Accidents, and generally follows a regular Fit; but seldom accompanies it, unless in very *Arthritic* Constitutions, and where the Lungs are at the same time weak.

This Cough sometimes ends in a regular Fit, especially if assisted by some brisk Cathartic, that is capable of exagitating the Blood.

Sometimes a Cough is very troublesome for four or five Days before a Fit, and may be looked upon as one of the preceding Symptoms thereof.

A Catarrh is always accompanied with an Asthma and Hemoptoe, which, though it may affright the Patient, is not dangerous, provided the Lungs are naturally good, and are hurt by no Accident, and a proper Method of Cure is early applied.

These Coughs and Catarrhs have often their Intervals, and return by Fits when the *gouty* Matter abounds in the Blood. They most frequently happen in Autumn.

These Coughs are generally without any Fever, or are accompanied with a very slight one; but if the Patient takes Cold, or indulges himself in the Use of spirituous Liquors, there is Danger of a Peripneumony, the Signs of which are the same as those of a Peripneumony from any other Cause. But when it appears to be *Arthritic*, some regard is to be had to the Cause.

In all these Bleeding is proper, when nothing contra-indicates; in tender and weak Constitutions, it is scarce ever proper; in those worn out with Age and Diseases, never. In case of an Hemoptoe or Peripneumony, Patients seldom recover when that is omitted; but upon these Occasions we must always bleed with Caution, for fear of rendering the Constitution too weak to expel the *Gout*, and throw it upon the Extremities.

The next thing to be done is to purge, which is serviceable in all these Disorders; but more particularly in a gross Constitution, or where the Intestines are loaded, and the Patient has lost no Blood. Those Purges are best, which exagitate the Blood considerably,

considerably, and help to move the *gouty* Matter. After these Evacuations, we must proceed to such Medicines as help to remove the *Gout* from the Lungs, and drive it to the Extremities, and with these Pectorals must be joined: For Example,

Take Alcohol Martis, and Balsam of Capivi, each half a Scruple; Conserve of Hips, one Scruple; Syrup of Maiden-hair, a sufficient Quantity; make into a Bolus: Or,

Take Flowers of Sulphur, or Benzoin, and Alcohol Martis, each half a Scruple; Gum Ammoniac dissolved, a sufficient Quantity; make into Pills.

Let this Bolus, or these Pills, be taken twice a Day in a Spoonful of Balsamic Syrup, drinking after it a Draught of the Pectoral Decoction, provided there is no Suspicion of a Fever. Let the Patient also take a little of the same Syrup frequently every Day.

If a liquid Form is more agreeable,

Take of the Syrup of Colts-foot, or Maiden-hair, half an Ounce; Tincture of Sulphur, ten Drops; to which, when well mixed, add of the Powder of Olibanum, and Alcohol Martis, each half a Scruple; Hyssop-water, two Ounces and an half; use as a Draught.

Instead of the Tincture of Sulphur, the following Medicines may be taken in their proper Doses.

Anisated Balsam of Sulphur, or Balsam of Sulphur prepared with Turpentine, Balsam of Capivi, of *Chili*, of *Gilead*, and that of *Peru*.

Musgrave says, when the Disorder has been inveterate, he has frequently given, with great Success, the *Peruvian* Bark, in order to prevent too great a Colliquation of the Blood.

Pectorals either in the Form of Troches, Eclegmas, &c. are proper to relieve the Cough.

If after three or four Days Use of these Medicines, no Signs of the *Gout* appear in the Joints, apply to the Part it usually affects, the Cephalic Plaister, either alone, or with an equal Quantity of Burgundy Pitch, or the Green Cerate.

But if these do not answer the End proposed, and the Lungs are not relieved thereby, more stimulating Applications must be used, as acrid Cataplasms, and Vesicatories. But in the Use of these, it must be observed, the weakest are always to be tried; nor are we to use the most severe, unless the Patient's Strength will permit them.

By way of Preservative, the Patient should have Issues opened in the Back; should contrive to breathe an Air that is dry, and agitated by the Winds; and should direct all his Endeavours to procure a regular Fit of the *Gout* at proper Intervals.

If this Method is omitted, or negligently pursued, the Cough grows worse, and the Body becomes emaciated; the Matter discharged by the Lungs, which was at first thin, grows more thick, and more difficult to cough up, and sometimes bloody. Hence the Lungs are exulcerated, and the Patient dies of a Consumption.

In an *Arthritic* Peripneumony there is much more Danger, and care must be taken in the very Beginning, or else it will afterwards be in vain. Therefore immediately let the Patient lose some Blood, a few Hours after give a Clyster, and the next Day a Purge; let the Patient also take, every Hour, Oil of Sweet Almonds, or Linseed Oil in the Form of a Linctus.

Emulsions and Decoctions, that are too cold, must be avoided; and if there is any Appearance of the *Gout* in the Joints, or any Hopes of bringing it thither, *Musgrave* advises Medicines which will promote it: He therefore recommends, from repeated Experience, Diaphoretics, and such external Applications as are likely to bring the *Gout* into the Extremities, contrary to the Opinion of *Sydenham*, which see in the above Quotations from that Author.

ARTHRITIC CONSUMPTION.

When the *gouty* Matter is repelled by any external Cause, and driven upon the Lungs, or is invited thither by the Weakness of the Part, the Patient is first seized with a Heaviness in the Breast, Difficulty of Breathing, and Hoarseness; then he begins to spit, first a thin Phlegm, which, by Degrees, grows thicker: In Process of Time his Flesh grows flaccid, he wastes by Degrees, and loses his Strength in proportion as the Discharge from his Lungs increases. Mean time, there is no *gouty* Tumor, or Pain, in the Extremities, or, at most, but very little, and that of a short Duration. The Paleness of his Face, and an universal Emaciation, daily increase; and the violent Cough, which attends it, sometimes brings on a Spitting of Blood. At last, an Hectic Heat comes on with a quick Pulse, and dry Skin, especially in the Evening, which is succeeded by symptomatic Sweats. So that at last the Patient is worn out by a violent Cough, great Spitting, colliquative Sweats, obstinate Diarrhoea, or, if there is no Diarrhoea, Swelling of the Feet.

A genuine Phthisis generally seizes upon young People; but that which is *Arthritic* rarely affects any but those who are old.

Women however are subject to it when they cease to breed, and the Catamenia leave them.

An *Arthritic* Phthisis is generally very chronic and slow, and is attended with an Hectic Fever only in the last Stage; whereas a genuine Phthisis is accompanied with an Hectic Heat from the very Beginning, and sometimes it precedes all the other Symptoms.

Sometimes a Cough does not end in a Consumption till after the *Arthritic* Matter has for several Years been changing its Situation, and falling alternately upon the Lungs, and Extremities.

Therefore, in order to adapt a proper Method of Cure to this Distemper, a Physician must carefully examine what Analogy it has with the *Gout*.

In the Beginning of the Distemper, when the Cough is troublesome, and a Phthisis is coming on, very good Effects are to be expected from Bleeding and Purging, if properly administered; for by these means the *gouty* Matter is sometimes evacuated, or at least removed, from the Lungs; but as this Effect is not perpetual, and cannot be depended on, these Evacuations must be used with Caution, and confined to proper Limits, lest the Constitution should be so far weakened by them, as to be rendered too weak to expel the *Gout*.

After either Bleeding, or Purging, or both, if necessary, or without either, if improper, we must have recourse to Pectorals, and Remedies calculated to expel the *Gout*. Let the Patient therefore take every other, or every third Hour, a Spoonful of a Linctus of recent Oil of Sweet Almonds, or Linseed Oil, with Balsamic Syrup, Syrup of white Horehound, Syrup of Turneps, or some other expectorating Syrup.

When there are no Signs of a Fever, let him take, with the Linctus, a proper Dose of Pills every sixth or eighth Hour, made of *Gascoign's* Powder, Alcohol Martis, Juice of Liquorice, and Balsam of *Peru*.

The Patient may take, in a liquid Form, ten Drops of the Balsam of *Peru*, or Tincture of Sulphur, in a Spoonful of the Linctus; and in the Intervals, six or eight Grains of *Alcohol Martis*.

These warm Medicines must be used in such Doses, and so often repeated, as the Expulsion of the *Gout* requires, and the Danger of the Fever will permit.

Musgrave assures us, he has never observed any great Danger from this Method, especially in old *Arthritics*, who are most subject to this Sort of Phthisis.

If the Fever is too much raised, either of its own Accord, or by the Use of warm Medicines, that is, if it runs higher than the Expulsion of the *Gout* requires, it must be mitigated by withdrawing these heating Medicines, by Clysters, by Bleeding, and the *Peruvian* Bark, together with such Medicines as are usually serviceable in a Peripneumony; and, when the Fever is conquered, the Patient must return to warm Medicines as much as the Circumstances will admit of.

After these Remedies have been used for two or three Days, or sooner, if any *gouty* Pain is perceived in the Extremities, stimulating Topics must be applied to the Part in Pain, or, if there is no Pain, to the Part which used to be most frequently affected.

Opiates, and such Medicines as render the Discharge from the Lungs thick, must not be used without great Caution, and in very small Quantities.

As soon as the *Gout* is expelled, and driven upon the Extremities, the Patient is surprisingly relieved, and the Lungs grow easy in proportion as the extreme Parts become painful. *Musgrave* says he has seen, by this Method, the Cough made tolerable, the Spitting diminished, and at last both entirely cured, inasmuch that the Patient has soon recovered his Colour, Flesh, and Strength.

When these good Effects begin to appear, those Remedies which expel the *Gout*, and those Topics which invite it to the Extremities, must be obstinately persisted in, till the Lungs are entirely free.

As the Lungs are generally left weak, in order to prevent a Relapse, the Steel Diuretic Waters are excellent, as is also a good Air; therefore let them be drank for a Month; or, if that cannot conveniently be done, let half a Pint of Tea be drank every Morning for some Months, and let the Patient take a Diet-drink constantly, made with pectoral Ingredients, as Ground-ivy, Harts-tongue, Maiden-hair, Fir-tops, Cypress-tops, Burdock, Seeds of the Wild Carrot, Juniper-berries, and dried Millepedes. Let this be used for the Patient's ordinary Drink.

A Maritime Air is much recommended by *Musgrave*, because, he says, the Sailors are seldom affected with a Cough, and very seldom die of a Consumption.

Riding also is much recommended, and Frictions of the external Parts, and those pretty strong ones, twice or three times a Day, as also large Issues upon the Back. *Musgrave* also mentions Chocolate, either with or without the Yolk of an Egg, as a proper Food; and cautions particularly against taking Cold, and contracting Catarrhs; to guard against which, he orders,

orders, during the Winter Half-year, a Decoction to be taken twice a Day of Sassafras Wood with its Bark, and the Roots of China and Sarsaparilla.

Musgrave thinks Cyder does Hurt in this Disorder.

The ARTHRITIC QUINSEY.

Musgrave says this Distemper has yet been but very little considered by Physicians.

It often seizes the Patient at the very same time with the *Arthritic* Pain in the Joints; and frequently follows some little time after a regular Fit.

When it forms an Abscess, which discharges Pus plentifully, it supplies the Place of an *Arthritic* Fit, renders the Patient healthful and chearful, and frees him for some time from the *Gout*.

This Quinsey often ends in a Fit of the *Gout*, by a Translation of the *gouty* Matter upon the Extremities, which sometimes happens by Accident, and sometimes is procured by Art.

This Species of Quinsey those People are most subject to, that have short and thick Necks, and moist lax and weak Constitutions.

Women are not so often affected with it as Men; the latter generally have it about the middle Time of Life, the former after the Menfes have for some time left them; but in both Sexes, those whose Blood is bilious, hot, and thin, are most liable to it.

Musgrave is of Opinion it never happens to any body, unless when the Blood is full of the *Arthritic* Matter, and ready to break out into a Fit.

A greater Fever precedes this Quinsey than any other Species of *Anomalous Gout*; this is soon after succeeded by a Pain, and inflammatory Tumor, in the Fauces, which is sometimes so great as to prevent the Patient from eating, or drinking, or taking his Breath without the utmost Difficulty, for three or four Days; sometimes a great Quantity of Saliva is discharged from the Fauces, the Patient has no Stools, and the Blood, when taken away, appears extremely fizy, even more than in the regular *Gout*.

The *gouty* Matter is frequently transferred from the Fauces, and falls upon the Hand, Foot, Knee, or any other Part of the Body.

If a Nausea and Sickness of the Stomach, Heaviness, Torpor, and wandering Pains, have preceded this Disorder, there is great Reason to believe it proceeds from a *gouty* Cause, when these Symptoms happen to a Patient who has been used to violent regular Fits at stated Times, which have been interrupted for a long time.

The Method of Cure must begin with taking away a considerable Quantity of Blood: Presently after give a Clyster; the next Day give a Purge, which must be of the lenient Kind, because of the Fever, already too violent, which would be increased by one more stimulating.

After the Intestines are evacuated by one Purge, they should not be stimulated any more for four or five Days, for fear of inviting the *Gout* to them.

After the Operation of the Purge, apply a very large Blister to the Neck; twenty-four Hours after, apply to the vesicated Part Melilot mixed with powdered Cantharides, in order to continue the Discharge of Serum.

Incising and aperient Gargarisms are of perpetual Use from the very Beginning.

Take of Barley-water, one Pound; Diamoron, four Ounces; Spirit of Sulphur by the Bell, as much as the Tongue can endure; use as a Gargarism: Or,

To Honey of Roses, add Spirit of Salt or Nitre, so that the Tartness be not too great; let it be kept in the Mouth a little while, and then discharged with the Saliva.

But nothing is more effectual, or causes a greater Discharge of Saliva, than the following Powder:

Take of Sal Prunella, and Sugar-candy, each equal Parts; mix, and let a Scruple of the Mixture be held in the Mouth till 'tis full of Saliva; then spit it out, and about a quarter of an Hour, or half an Hour after, let it be repeated, provided the Patient is not asleep.

'Tis of great Service to receive into the Mouth the Vapour of a Decoction of the following Plants: Mugwort, Sage, Marjoram, Rosemary, Elder, Chamomile, Calamint, and Feverfew.

The next Day but one, or sooner, if the Symptoms run high, as Difficulty of Breathing, and of Swallowing, Bleeding must be repeated in the Jugular Vein, which is sometimes necessary more than once.

If the Throat is in great Pain, apply to it a Cataplasm of Marshmallow-roots, Mallow-leaves, and bruised Figs, boiled in Barley-water, adding three Ounces of this Magma:

Take of boiled Onions, one Ounce and an half; Linseed, half an Ounce; Crums of Bread, an Ounce; Oil of white Lilies, a sufficient Quantity.

Let the Mouth be frequently gargled with Milk and Water in equal Quantities.

If the Case grows so desperate, that the Patient would immediately be suffocated without instant Help, the Operation of *Bronchotomy* must be performed.

During the Use of these Medicines, all Methods must be used to bring the *Gout* into the Extremities. Therefore, after Purging, let the Patient be permitted to drink Cyder, White-wine, Rhenish, and such sort of acidish Liquors, and sometimes pretty freely.

Apply to the Joint which used to be most frequently affected with the *Gout*, a Plaister made of equal Parts of *Oxyroceum*, the *Cephalic Plaister*, and *Burgundy Pitch*; or, if more acrid Applications are necessary, stimulating Cataplasms.

Bathing the Feet in Water as hot as the Patient can bear it, invites the *Gout* to the Part.

As soon as any Tumor is excited, let it be wrapped in soft Flannel, or double Linen.

As soon as a Tumor appears in the Extremities, that of the Fauces generally subsides; and soon after Pain, with all the Signs of a regular *Gout*, returns, and the Patient soon gets rid of the Quinsey.

If a *Vomica* should be formed in the Throat, and break, an Emollient and Suppurative Gargarism must be used; for Example, of a Decoction of Barley, Liquorice, and Figs; and after that, one moderately restraining. Meantime, let the Patient live on Gruel, Barley-water, and such sort of thin Aliment. In the Day-time, let him abstain from lying on the Bed as much as possible. When he is in Bed, let his Head be elevated: When he is up, the Legs ought to hang down.

When the Case is over, let the Cure be finished with a lenient Purge.

The Cyder that is drank in this Disorder, should be generous and rough, such as that of *Devonshire*.

Musgrave says, that of all the Patients he has seen labouring under this Disorder, all but one were young Men.

This Author sometimes allows a Pint or two of Cyder in twenty-four Hours.

The ARTHRITIC HEAD-ACH and VERTIGO.

An *Arthritic* Head-ach generally seizes those who have been *gouty* for many Years, and who, being now past the Meridian of Life, indulge themselves too much in eating and drinking, and, at the same time, use but little Exercise, and hence become plethoric and gross. People that are full of Blood, are most of all subject to this Disorder, especially if they have short Necks.

This Head-ach is frequently preceded by the Signs of an approaching Fit of the *Gout*, which last for some Days, and then end in a regular Fit: But the *Gout* then receding, or being too languid, an Head-ach ensues, which lasts for many Weeks, and sometimes Months; and at last ends in an Apoplexy, unless the *Gout* is transferred to the Extremities, or, at least, removed from the Head; and, indeed, it seldom ends, except in a regular Fit, or an Apoplexy.

The Pain is sometimes not very great, but of long Continuance; sometimes excessive and intolerable, arising almost to a Delirium.

Sometimes the Patient complains of the Head-ach only; but 'tis commonly accompanied with a Vertigo, and sometimes with a Noise in the Ears, Difficulty of Breathing, a large Pulse, wandering Pains in the Limbs, and a florid Colour of the Face; all which Symptoms vanish as soon as the *gouty* Matter, falling upon the Extremities, causes a regular Fit.

An *Arthritic* Vertigo exactly agrees with an *Arthritic* Head-ach; the same sort of People are principally subject to it; it has the same Causes, is accompanied with the same Accidents, and is in like manner cured by a regular Fit.

A Vertigo is sometimes slight, and a Sign of an approaching Fit, ceasing when the Fit becomes regular. But 'tis sometimes very troublesome, insomuch that the Patient can scarcely walk without falling.

This in a little time ends in an Apoplexy, if a regular Fit does not happen time enough to prevent it.

Musgrave says, he never knew an *Arthritic* Vertigo terminate in an Epilepsy, which is very common in one of the genuine Kind.

The Cure must begin with Bleeding in both Cases, that of a Head-ach, or Vertigo; especially when accompanied with Dimness of Sight, Redness of the Face, and Pulsation of the Temporal Artery, which threaten an Apoplexy. But as in all *Arthritic* Disorders, so in this, regard must be had to the *Gout*; so that we are not to bleed so much, and so often, as in these Distempers when the *Gout* is not in the Case. This must therefore be regulated in such a manner, that enough may be taken away

away to relieve the Head, and no more, for fear of preventing the Expulsion of the *Gout* to the Extremities.

Sometimes the *Gout* begins to be felt in the Joints, immediately after Bleeding.

If there is any Complaint of Sickness at the Stomach, it may be proper to wash it with a Decoction of Tea, or Carduus Posset-drink, taken by way of Vomit.

Purge with Pilulæ Ruffi, the lesser Pilulæ Cochiae, or the Pilulæ ex Duobus, with an Addition of some few Grains of Resin of Jalap, very soon after Bleeding or Vomiting, if that is thought necessary.

In Constitutions which are easily purg'd, a Solution of Cathartic Salt in Water, or the *Alford* Waters, are sufficient.

One Purge is not always enough, when its Operation is but gentle, or the Constitution is much loaded; it must therefore be repeated in such a manner, as to answer the End of removing the *Gout* from the Head to the Extremities.

After Purging, the Patient very frequently begins to feel Pain in the Extremities; but if he does not, we must proceed to such Medicines as remove the *Gout* into the Joints; but these must be used with great Care and Caution, lest, instead of answering the Design, they should drive the Blood, and with it the *gouty* Matter, more forcibly into the Head, increase the Disorder, and destroy the Patient. Therefore, we must abstain from powerful Chalybeates, and strong Podagragogues, and substitute the following Cephalics in their room; but even these must not be used, till the Heat has been much reliev'd by Bleeding and Purging.

Proper Cephalics, in this Case, are red Coral, simple or compound Powder of Crabs-claws, and white Amber: These, and such of this Class as are yet milder, may be taken by themselves, or made into the Form of a Bolus, with Conserve of Rosemary-flowers, Flowers of Betony, Syrup of Stœchas, simple Syrup of Piony; or they may be made into Pills, with Extract of Gentian, together with Powder of Dittany of Crete, Castor, or Piony-seeds.

After plentiful Evacuations, three or four Grains of Salt of Steel, or even *Alcohol Martis*, may be added to these Medicines, and repeated every six or eight Hours.

After each Dose, let the Patient take a Draught of a Julap made of the simple and compound Waters of black Cherries, Lime-tree-flowers, and Piony, with compound Spirit of Lavender: Let him take, once in the Intervals, a few Drops of the Tincture of Amber; or, if the Fever does not run high, of the Spirit of Sal Volatile Oleosum, or Hartshorn, in an Infusion of the Tops of Sage, Rosemary, or Tea.

To these may be added the Species Diambræ, without the Perfumes, or its Tincture.

Coffee is very good, especially if made with an Infusion of some Cephalic Plant.

In like manner in an *Arthritic* Vertigo, after Evacuations, the following Medicines may be taken alone:

Powder of Rue-seeds, Male Piony, Castor, Valerian-root, Wild Cypress, Winter's-bark, Orange-peel, compound Powder of Rosemary-flowers, Species *Diamofebi dulcis*; or some of these may be made into an Electuary, with Conserve of Piony-flowers, or Syrup of Piony, or Syrup of Nutmeg candied in the *Indies*.

Pills may also be given, made of the *Pulvis de Gutteta* and *Ens Veneris*, with Extract of *Calamus Aromaticus*, or a Solution of *Asa-fœtida*.

To these may be added Salt of Steel, or Salt of Amber; and these may be taken every six or eight Hours, in a moderate Dose; that is, in such a manner that the Spirits may be reliev'd, and not disturb'd thereby.

After each Dose of these, a Draught of the Cephalic Julap should be taken.

In the Intervals let one Dose of the above-mention'd Infusion be taken, with some Drops of Tincture of Amber.

Fetids, apply'd to the Nose, are also of Service, as Spirit of Sal Ammoniac, with Salt of Tartar, Castor, and *Asa-fœtida*.

Things of a grateful Flavour have also sometimes a good Effect.

Musgrave advises to anoint the Temples and Nostrils with the following Balsam:

Take of the Chymical Oils of Rosemary, Lavender, Marjoram, Thyme, Origanum, Hyssop, each one Scruple; Oils of Cinnamon, Oranges, Angelica, and Rue, each one Dram; Oil of Amber, half a Dram; Oil of Cloves, half a Scruple; Oil of Nutmegs, by Expression, four Ounces; Ambergrise, two Drams; Musk, one Dram; Balsam of Peru, five Drams: Let the Ambergrise and Musk be laid upon a Marble; let them be moisten'd with the Oils, and levigated with the Stone for that Purpose, till they are reduced to a Mass of the Consistence of Pomatum. To this Mixture add some *Peruvian* Balsam, and

VOL. I.

continue the Levigation for half an Hour: Then add the Oil of Nutmegs by Expression, and continue the Trituration for an Hour longer. Let this fragrant Cephalic Balsam be preserv'd for Use in a Phial.

After these Cephalic Medicines have been taken for a Day or two, in either of these Disorders, apply to the Joint commonly affected some stimulating Topic, as a Plaster, made of two Parts of Gum Caranna, one Part of yellow Wax, and a sufficient Quantity of the Oil of Worms: But if this is not sufficient, and the Disorder of the Head still remains, or increases, we must proceed to Sinapisms, Vescicatories, Flannel, and Ligatures.

Musgrave is of Opinion; that cooling Emulsions and Decoctions, Narcotics, cooling Embrocations, Epithems, and washing the Head with cold Water, are dangerous in this Case, tho' they may be of Service in Disorders of this Kind from another Cause.

He also disapproves of applying Leeches to the Hæmorrhoidal Veins, for fear of an Inflammation or Fistula.

By way of Precaution, and to hinder a Return of the Disorder, it would be proper to apply a Blister sometimes to the Neck or Arm, to bleed in the Spring, to take a Purge every Month, and always to avoid being costive, and to keep the Feet very warmly cloath'd.

Those that are subject to these Disorders, should religiously abstain from Errhines, from sleeping after Dinner, and from hard Drinking.

AN ARTHRITIC APOPLEXY.

Gouty People, who have been so for many Years, have short and thick Necks, who begin to grow old; and particularly those who indulge themselves in Eating and Drinking, and become plethoric, after leaving off some accustom'd Exercise, are most subject to an *Arthritic Apoplexy*; which happens when a regular Fit of the *Gout* is interrupted, or deferr'd too long, or else is not sufficiently violent to carry off the *gouty* Matter.

The Cure of this Distemper is different from that of a genuine *Apoplexy*.

The Signs of an approaching *Arthritic Apoplexy* are, a Head-ach, or Vertigo, or both together; the Head is heavy, the Face is bloated and red, the Tongue falters often, the Motions of the Patient's Body are disorderly, and his Steps unequal; and if the Disorder increases, he is suddenly deprived of all Sense and Motion, and his Eyes become greenish, as if he was dead: A Stertor and Snoring, and all the other Symptoms of a genuine *Apoplexy*, attend this, so that its *Arthritic* Nature must be discover'd by adverting to the State of the Constitution, and considering what Sort of *gouty* Paroxysms have preceded.

Tight Bandage about the Neck very much contributes to keep the Blood in the Head, and cause an *Apoplexy*, especially when People are full of Drink: These People, therefore, when they go to Bed, should have the Collars of their Shirts unbutton'd.

An excessive Use of Opiates and Errhines contributes much to this Disorder; as does also whatever repels the *Gout* from the Extremities.

The Spring and Autumn favour the Production of an *Arthritic Apoplexy*.

If a right Method of Cure is apply'd, many Patients recover of this Distemper; and afterwards enjoy a much better State of Health, than those who recover of a genuine *Apoplexy*, especially if they become regular, temperate, and sober.

The proper Method of Cure consists in relieving the Brain by Evacuations and Revulsion, and removing the *Gout* to the Extremities; at the same time removing all Obstacles which may prevent a regular Fit, as Shoes or Stockings that are too tight. Bleed therefore immediately, to twelve, fourteen, or sixteen Ounces, according to the Strength and Constitution of the Patient.

Immediately after give a Clyster of human Urine; or the common Decoction for Clysters, with common Salt, or roasted Aloes, or some other stimulating Ingredients.

Soon after this give a stimulating Purge, as half a Dram or two Scruples of the Countess of Warwick's Powder; or else one Scruple of the Extract of *Rudius*; between six and ten Grains of the Resin of Jalap; of Elixir Proprietatis, a sufficient Quantity to form into Pills; or three Ounces of the purgative bitter Decoction; or one Ounce, or an Ounce and an half, of the Syrup of Buckthorn.

If the Purge does not work briskly in three or four Hours, let a Clyster be repeated.

During all this time let the Patient be kept in an erect Posture.

After Purging repeat Bleeding, either in the Arm or Neck.

Cupping betwixt the Scapulæ is of great Service.

After these Evacuations, apply to the Joint that has lately been painful, some powerfully stimulating Plaster, as, for Instance, that made of *Burgundy* Pitch and *Venice* Turpentine;

or the Cephalic Plaister, with Euphorbium: Mean time keep the whole Limb extremely warm with Flannels.

Musgrave relates, that he has known exceeding great Effects from keeping the Feet a considerable time in Water, as hot as the Patient could possibly bear it; for by this means he was saved, tho' before, in all Appearance, expiring.

If this Method does not relieve the Patient, apply a Blister to the Neck, to the Sinciput, or all over the Head, after it has been shav'd, and let it lie on four or five Days.

Apply also Blisters to the Ankles, if the Gout used to appear principally in the Feet; or to the Arms, if the Hands were usually affected.

If the Patient is extremely ill, a Cupping Glass should be apply'd to the Neck, or to that Part of the Head where the Lambdoidal and Sagittal Sutures meet, if the back Part of the Head is most affected; or, if the fore Part of the Head, to the Place where the Sagittal and Coronal meet.

But if none of these Applications are thought necessary for the Head, it should at least be shaved, and rubb'd well, in order to relax the Skin; and a Cumin Plaister should be worn upon it, in order to increase the Perspiration of the Part.

But if the Disorder still continues, it will be serviceable to make use of such Errhines as draw the Serum from the Nose, without making the Patient sneeze, which in this Case is dangerous.

The Patient should frequently chew in his Mouth acrid Plants, which cause a great Discharge of Saliva: For this Purpose,

Take of the Shavings of Horse-radish, and bruis'd Mustard-seed, each half a Dram; Powder of Pellitory of *Spain*, one Dram: Mix up with Honey, and put the Whole in a Piece of Muslin. This the Patient must squeeze between his Teeth, and discharge the Spittle as 'tis generated in his Mouth.

Mean time, whilst these Evacuations are making, the Patient should frequently take a Dose of Spirit of Sal Volatile Oleosum; or Spirit of Hartshorn succinated, with a Cephalic Julap; or a Dose of Pills should be taken twice or three times a Day, made of the *Pulvis ad Guttetam* and Castor, reduced to a Mass fit for Pills, with Oil of Amber, and a Solution of *Asa-fatida*.

These raise the Spirits, at the same time that they contribute to expel the Gout; but should never be used without plentiful Evacuations preceding.

If these Remedies are not sufficient to bring the Gout to the Extremities, we must proceed to the most stimulating Cataplasm.

As soon as any Tumor or Pain appears in the Extremities, we must endeavour to keep it there, and hinder a Retrocession. To this End, a Blister must be apply'd to the Part, which must be kept running a considerable time by Melilot, mix'd with Cantharides, if necessary. Mean time let the Part be kept extremely warm, with Flannel and Woollen Rollers; and let the Foot, if that Part is affected, be kept all Day in a declining Position.

Violent Frictions of the Extremities, apply'd twice or thrice a Day, are of the utmost Importance.

The Gout appearing in the Extremities is the most happy Circumstance that can happen; and then, and not till then, some gentle Podagragogues may be given, that is, when we perceive the Course of the *gouty* Matter to be alter'd, and there is no longer any Danger of driving it more forcibly upon the Head.

The Countess of *Kent's* Powder, in the Quantity of a Scruple, every six or eight Hours, is a proper Medicine in this Case. And to this may be added, once a Day, or, in a phlegmatic Constitution, twice, five Grains of *Alcohol Martis*.

But if by any means the Gout should be repell'd from the Extremities, or the Head should suddenly grow worse, these Podagragogues must immediately be left off, and recourse must be had to stimulating topical Applications, and the above-mention'd Medicines, which contribute gently to raise the Spirits.

During the Use of these Remedies, let the Patient's Diet be extremely low; let him live, for Example, on Chicken-broth, Gruel, or Panada, with Currans or Raisins: Chocolate may sometimes be allow'd. Instead of small Beer let the Patient drink Cyder, Wine and Water, and Infusion of Tea, or Sage, or of Clove-gilly-flowers.

Nothing is more dangerous than full Meals, especially in the Evening.

As to Stools, let the Patient be kept in a moderate way; for too many may invite the Gout to the Intestines, and Costiveness oppresses the Head.

By way of Prevention, nothing is more serviceable than Scapulary Issues, Country Air, and purging Spring and Autumn, and bleeding in the Beginning of *October*, in strong Constitutions.

But the best Preservative is to keep the Gout to regular Fits.

There is another Sort of the *Arthritic Apoplexy*, which *Musgrave* calls Symptomatic, whose Cause is in the Stomach and Intestines. This, he says, must be cur'd by Vomiting and Purging, by Medicines exciting the Spirits, and which expel the Gout.

The ARTHRITIC PALSY.

The *Arthritic* Matter, sometimes falling upon the Origins of the Nerves, causes a Palsy of the respective Parts to which they belong; and that more particularly in such *gouty* Constitutions as incline to a Plethora.

A moist and fenny Air, a sedentary Life, a bad Regimen, a frequent Use of Opiates, and of Spirituous Liquors, immoderate Venery, Cold, too frequent Use of warm Medicines in hot and bilious Constitutions, or whatever hinders the Gout from falling upon the Extremities, or repels it when there, are the usual Causes of an *Arthritic Palsy*.

The Nerves of the Tongue are sometimes affected, and then the Patient loses the Use of his Speech, or can utter but half Words confusedly.

If that Branch of the *Par Vagus* that belongs to the Stomach is affected, the Patient loses his Appetite and Digestion, and has an Aversion to all Aliment; insomuch that he daily wastes, and insensibly becomes tabid.

This Case *Musgrave* says he has known happen in *Arthritic* Constitutions, where there has been also a Plethora; and from these Causes first an *Apoplexy*, then a *Palsy*.

When an *Arthritic Palsy* happens in bilious Constitutions, especially when it follows a bilious Colic, the Patient loses his Appetite, his Flesh wastes, the Skin does not perspire, but is dry, and of an icteritious Colour, as are particularly the Whites of the Eyes.

Sometimes one Side only, or one Member, is affected, as the Tongue in particular: Sometimes the Distemper is accompany'd with convulsive Motions, and 'tis sometimes without: Sometimes the Palsy is imperfect, and only renders the Parts it seizes on unwieldy, and unfit for Motion; sometimes 'tis perfect, and renders them entirely useless and immoveable.

This Disorder is very difficult to be cured, especially when it succeeds an *Apoplexy*; and, if the *Apoplexy* returns, 'tis generally fatal; however, if a right Method of Cure is pursued, the Patient sometimes recovers, beyond all Expectation.

If the Pulse is full, and the Patient inclin'd to a Plethora, begin the Cure by Bleeding, either in the Arms or Jugular Vein, or by Cupping, with Scarification upon the Back.

A few Hours after Bleeding give a Clyster. Purging is perpetually useful; but the Purges should be of the stimulating Kind, capable of exagitating the Blood, and removing the Gout to the Extremities.

As soon as ever an *Arthritic Palsy* seizes the Patient, apply to the Joint, which used to be most affected with the Gout, the Apoplectic Cataplasm of *Bates*, *Fuller's* Cataplasm of Horse-radish, or some other equally stimulating.

As soon as the Tendency of the *gouty* Matter is chang'd from the Head towards the Extremities, and not before, the Patient may take some gentle Podagragogues, as *Gascoign's* Powder, or the Purple Powder, twice or three times a Day, with a Draught of a Cephalic Julap.

As soon as any Tumor appears in the Extremities, apply to it a Vescicatory.

'Tis proper also, in this Disorder, to apply an Epispastic to the Neck; and to the Head, after shaving, the Cumin Plaister, or some other drawing Plaister; but not till after general Evacuations.

Gargarisms, which cause a great Discharge of Saliva, must be used; and a very thin Diet must be injoin'd.

Mean while, let the Patient take, from time to time, a Dose of volatile Spirits, Tincture of Castor, or of Amber, in a Draught of a Cephalic Julap, or an Infusion of Rosemary or Sage.

When the *gouty* Matter is much fix'd upon the Nerves, 'tis necessary to attenuate it by Decoctions of Guaiacum, and of the Wood and Bark of Sassafrax, by Preparations of Steel, by Frictions, Baths, Embrocations, proper Cloathing, Liniments, Cerats, and Plaisters, as in a genuine Palsy.

Musgrave recommends a Decoction of the Bark, with Chalybeates, as a Thing he has known of great Service.

Musgrave also directs us to examine diligently, whether the Patient is hot or cold; whether the *gouty* Poison is accompany'd with a Viscidity of the Blood, or not; or whether 'tis join'd with a Redundancy of Bile, as in the Case of an *Arthritic Palsy*, immediately following a bilious Colic, of which he gives an Instance.

In the last-mention'd Cases, warm Medicines, taken in Quantities, for any time, make the Patient unquiet, feverish, and deprive him of Sleep; nor is he, in the least, rais'd or made stronger by their Use; but, on the contrary, much weaken'd and disturb'd.

In such Cases, therefore, the Author recommends *German Spaw*, or *Bristol Water*, as Things of great Efficacy, if drank fresh; and, he says, other Chalybeate Waters may have the same good Effects: And if Chalybeates are added to these at proper Times, and in proper Doses, he says, the Cure of such Disorders is perform'd very agreeably, and with great Certainty.

By way of Prevention, nothing has so good an Effect, as procuring regular Fits of the *Gout*; for the more the Extremities are in Pain, the less the nervous System is affected.

Therefore, as soon as there are any Signs of the *Gout* abounding in the Blood, if nothing contra-indicates, let the Patient take a Draftic Purge; and afterwards, twice or three times a Day, five Grains of *Alcohol Martis*. A few Days after, apply some stimulating Topic to the Joints, in order to invite the *Gout* thither.

Mean time, the Patient must never be suffer'd to be costive. He must also keep Issues perpetually running in the Arms, or upon the Back.

IRREGULAR ARTHRITIC PAINS in the BODY; ARTHRITIC OPHTHALMY, ERYSIPELAS, and ACHORS.

'Tis common enough for a *gouty* Person to feel wandering Pains in the Back, Loins, Scapulae, Sternum, and external Parts of the Head, which affect him for some time, and then remove elsewhere; insomuch that these Pains are frequently mistaken for a Rheumatism. But sometimes these Pains remain a considerable Time in the same Part, and give the Patient a great deal of Uneasiness; and this happens frequently in the Loins, affecting the Patient as if he had the Stone in his Kidneys. The Seat of the *gouty* Matter upon this Occasion is the Spina Dorsi, and its Membranes; and it seldom happens but in Constitutions worn out with Age and the *Gout*, and not able to throw out a regular Fit.

The *Gout* will also fall sometimes upon the Tunica Adnata of the Eye, and cause an *Ophthalmia*, which immediately vanishes as soon as a regular Fit of the *Gout* appears in the Extremities.

Musgrave relates, that he knew an old *gouty* Patient, who had the superior Palpebra in very great Pain for a whole Month and more, which disappear'd upon a Fit of the *Gout* immediately following.

The same Author says he has known an Erysipelas terminate in the *Gout*; from whence he infers, that it was caus'd by the Arthritic Matter.

In some Arthritic Constitutions, when the Fits are too mild and interrupted, the *gouty* Matter is evacuated by the Ears, and in others by Achors only, without any Appearance of it in the Joints.

In all these Cases, the Danger is much less than when the *gouty* Matter fixes upon the internal Parts, and affects any of the Viscera; and they are attended with these Advantages, that they very seldom recede, and fall upon the Viscera; but are very often transferred to the Extremities, and cause a regular Fit.

The same Method of Cure is requir'd in all these *gouty* Disorders.

The first Step to be taken therefore, if they are violent, is to bleed; and after that to give an Aloetic, or some other Draftic Purge, that the Arthritic Matter may in part be evacuated, and in part be removed to the Extremities.

After these general Evacuations, *Musgrave* advises to do no more, unless the Pain is very violent; and in this Case, the Patient may endeavour to evacuate the Arthritic Matter, or to remove it to the Joints, by Sweating; and to this End let him be well cover'd with Bed-cloaths; or let him take Spirit of Hartshorn, Venice-treacle with Gascoign's Powder, the Pulvis ruber Exoniensis, or some such Cordial with Rosemary Posset-drink.

These Cardiacs are proper in fixed or wandering Pains, or in an Erysipelas.

If an *Ophthalmia* should grow worse after Evacuations, *Musgrave* advises the following Collyrium:

Take the White of an Egg, beat it, dilute it in Rose-water, and add some Grains of Camphire; make into a Collyrium, a few Drops of which must be put into the Eyes every Morning, and let a Linen Cloth soaked in it be apply'd to the Eyelids twice or thrice a Day. Lapis Calaminaris, or Lapis Tutiae, may very properly be added to the Collyrium, provided they are duly prepared.

As for the above-mentioned Achors, they are to be treated in the same manner as others, which are not from a *gouty* Cause; but *Musgrave* says they are so safe, and even useful, that he would not advise any Attempt to procure a Pain in the Extremities upon this Account.

AN ARTHRITIC EPIPHORA, and TOOTH-ACH.

Joh. Steph. Strobelbergerus wrote a Treatise *De Podagra Dentium*.

Sometimes the *gouty* Humour falls upon the Glands in the Orbits of the Eyes, and causes a Discharge of sharp Serum from them:

And sometimes upon the Gums and Membranes which surround the Roots of the Teeth, and causes violent Pain. These sometimes happen after the *Gout* has been repell'd from the Extremities, and sometimes end in a regular Fit.

If these Disorders become considerable, bleed in the Jugular Vein rather than in the Arm. Then give a Draftic Purge the next Morning. After this, lay an Epispastic to the Neck; and when that is taken off, apply some stimulating Ointment to the vesicated Part, in order to continue the Discharge.

But if, notwithstanding these Remedies, the *Gout* continues in the Part, we must proceed to use those Medicines which force it, and those Topics which draw it to the Extremities.

In an Epiphora, *Musgrave* recommends Woman's Milk, which he advises to be put into the Eye; or a Collyrium of the Mucilage of Flea-bane and Quince-seeds made with Rose-water, or Plantain-water, with the white Troches of Rhafes.

In case of Pain in the Teeth, the same Author advises a Gargarism, that will cause a Discharge of Saliva.

If 'tis absolutely necessary to pull out the Tooth, the same Author advises to gargle the Mouth with Spring-water, Honey of Mercury, and common Salt; and after this he directs that the Tooth should be put into its Place again, which he says will become more useful for having been drawn.

MISCELLANEOUS OBSERVATIONS.

When the *Gout* seizes upon any of the Viscera, or other Part, it exactly imitates the genuine Distemper which the Part is subject to, so as to be distinguished from it with Difficulty.

The *Gout* seldom destroys any body without becoming first anomalous.

People are frequently for a long time in a bad State of Health, and complain of Pains in the Shoulders, Breast, Back, and Loins, like those of the Rheumatism; sometimes of Disorders in the Head, like Hyterics, and at other times of Disorders that seem to be Scorbutical; all which at last terminate in the *Gout*.

Musgrave calls that *Gout Symptomatic*, which derives its Origin, and proceeds from some other Distemper, as the Rheumatism, Venereal Disease, Dropsy, or Scurvy.

Having given an Account of the Treatment due to the Regular, and the several Species of the Anomalous *Gout*, it remains that I say something with respect to the Causes of this obstinate and excruciating Distemper.

Sydenham, as we see above, and after him *Boerhaave*, and most Authors who have written intelligibly on the Subject of the *Gout*, are of Opinion, that its original Cause is Indigestion. And yet this Disease, when not hereditary, generally attacks those whose Constitutions are robust and good, whose Appetites are keen, and who have at least the Appearance of digesting their Aliment very regularly. Hence it may be asked, How it happens, that such People have the *Gout*, whilst others, who are of a weak Habit, whose digestive Organs are lax and unbrac'd, and whose Digestions are manifestly performed with less Vigour, should be so fortunate as to escape it.

In order to reconcile these seeming Contradictions, and give a clearer Idea of the *Gout*, than most People seem to have form'd, two Things are principally necessary to be adverted to.

The first is, That there is in animal Bodies a decreasing Series of Vessels destin'd to convey Juices to the several Parts. Physicians know what I mean by a decreasing Series of Vessels; but that I may not be mistaken by others, I shall explain it farther.

Suppose, then, the Vessels whose Diameters are largest, are destin'd to convey the red Globules of the Blood, (and together with these, all the other Parts of the circulating Fluid) which are either reconvey'd to the Heart by correspondent Veins, when they arrive at Vessels whose Diameters are too small to receive them; or, perhaps, being divided into several Parts, till at last they become transparent, circulate forward in the next Series of Vessels, which we may conceive adapted to convey Serum. The next may possibly be capable of receiving Lymph; the next a Fluid still finer, till at last the most minute Vessels in the Body may convey a Fluid consisting of finer Particles than we can form any Idea of, as not being the Objects of our Senses.

That this is in some measure the Case, is certain, because, if red Globules of Blood were to circulate in the Humours or transparent Membranes of the Eye, Vision could not be performed; as we find it is not, when thro' an *Error Loci*, as *Boerhaave* very properly calls it, such Particles get into the Vessels of the Parts not adapted naturally to receive them.

Thus, also, if a Part furnish'd with Vessels which convey these red Globules is wounded, red Blood is extravasated; but wound a Tendon, and nothing but a fine Lymph or Lchor shall be discharged.

The second Thing I would have attended to is, that a great deal of Earth resides in the circulating Fluid, which I believe nobody

nobody will dispute. It will be of some Importance in our present Inquiry to trace this Earth from its Source, the Ground to its Entrance into the Blood, after having observ'd, that human Bodies, as well as those of other Animals, are nourish'd either by Vegetables, or by Animals, which gain their Sustenance from the Soil.

In the Ashes of all Vegetables we find a great Quantity of pure Virgin Earth, which, when perfectly freed from the adhering Salts, is neither capable of being alter'd by Fire, nor dissolv'd by Water; and yet, without such a Solution, it is inconceivable how this Earth could pass thro' the extremely minute Pores of the Roots, circulate in the Sap, and contribute to the Formation of the Vegetable. It is therefore highly probable, that this Solution is brought about by some means, which it is not our Business at present to inquire into: But, for Information in this Particular, see the Article *ACETUM*.

When Vegetables are taken into the Stomachs of Animals, the Earth which they contain, or at least a Part of it, must necessarily undergo a second Solution, otherwise it could not enter the minute Orifices of the lacteal Vessels, circulate with the Fluids, and ultimately be converted by the vital Powers into Nourishment for the solid Parts of Animals: And that it does actually enter the Lacteals, circulate with the Fluids, and is converted into Nourishment, is certain, because we find a great Quantity of this Earth both in all the Solids and Fluids of Animals, which is not convey'd thither by Magic.

If Animal Substances are taken by way of Aliment, the contain'd Earth must undergo a third Solution, perhaps more difficult to be brought about than the former two, as the Parts of Animals cohere more strongly than those of such young Vegetables, as are generally us'd in Food.

This Solution of the Earth in Animal and Vegetable Substances, is made by the *Powers of Digestion*; and if these are vigorous, and perform their Duties regularly, the Mass of Blood is supply'd with fresh Chyle, suited to perform all the Offices requir'd by the Animal Economy.

But if the Powers of Digestion are defective, this Solution is imperfect in proportion; inasmuch that if the Aliment be scarcely dissolved at all, it is either discharg'd by Vomit, or passes off by Stool little alter'd, as it happens in a *Lientery*.

Again, let us suppose the Bile viscid and unactive, and consequently incapable of completing, by its saponaceous Quality, the Solution begun in the Stomach; so that the Aliment is not comminuted sufficiently to supply Chyle fine enough to circulate thro' the Lungs; in this Case, Difficulty of Breathing will be the Consequence, as it happens in a *Chlorosis* (*Green-sickness*); and as in this Case the Chyle is farther deprived in a great measure of the Action of the Lungs, which was necessary to comminute it, and convert it into good Blood, the Blood hence form'd is too gross to circulate thro' the Glands; and the superfluous Water, which ought to be carry'd off by the proper Excretories, remains in the Mass; and hence Obstructions in the Glands, and Dropsies.

It would, perhaps, be somewhat difficult to trace the Aliment thro' all the different Degrees of Solution, and account for all the various Disorders caus'd by the Stagnation thereof in the different *Series* of Vessels. It suffices for my present Purpose, that whenever any Particles of the Blood, that is, of the dissolved Aliment, arrive at a Series of Vessels, whose Diameters are less than their own, they must there stagnate, unless they are capable of being divided into smaller Particles.

Now, with respect to the *Gout*, let us suppose a Man in full Vigour, who eats and drinks with Appetite, and by the Help of due Exercise preserves a Tone and Elasticity in the Organs of Digestion, sufficient to dissolve his Aliment effectually. Suppose also this Person on a sudden leaves off, either in part or totally, his habitual Exercise, and that his Appetite does not diminish in proportion to the Powers of Digestion. It may happen in this Case, that the Aliment may be sufficiently comminuted for most of the Purposes of the Animal Economy, whilst the Earth is not so perfectly dissolved as to circulate freely thro' the remote *Series* of Vessels, which convey Juices to the exanguineous Parts, or Parts which are nourish'd by Lymph, Lchor, or some finer Fluid; such are the Tendons, Ligaments, and nervous Membranes. When, therefore, the partially dissolved Portions of Earth arrive at very remote Vessels, whose Diameters are smaller than their own, they there stagnate, being hard and incapable of farther Division, and distend the extremely sensible nervous Fibres; being also impell'd by the succeeding Fluid, they are driven against, cut and tear the nervous Fibres, and are productive of that excessive Pain, which *gouty* People are too sensible of in the Paroxysms of that Disorder.

When a sufficient Quantity of this obstructing Earth has, in repeated Fits of the *Gout*, been fix'd upon the Part, the Tendons and Ligaments grow stiff and immoveable; and by Degrees the obstructing Matter works thro' the Integuments, and appears in its proper and original Form, that of *Earth* or *Chalk*.

If this obstructing Matter should be repell'd, or hinder'd from fixing on the Extremities, by Design or Accident, it may be impell'd upon the nervous Membranes of the more noble Organs, and cause the Disorders peculiar to each respective Part, in the manner specify'd above.

Hence we may understand the Reason why the *Gout* has been in all Ages esteem'd incurable; that is, because the Cause resides in very remote Vessels, in a great Degree out of the Sphere of the Operation of Medicines.

Hence also, according to the System of *Sydenham*, if the digestive Organs are strengthen'd by warm Aromatics, the Force of the Circulation is increased, and the *gouty* Matter is impell'd with greater Force upon the Extremities, and consequently with a greater Degree of Pain. On the contrary, if the Disease is treated with cooling Remedies, the digestive Organs are relax'd, and a Foundation is laid for a greater Store of the *Arthritic* Matter.

That this short Theory of the *Gout* may not appear utterly barren, I must farther remark, that alkaline Salts are the only Substances known in Nature, which afford a Menstruum capable of dissolving Earth. Thus alkaline Salts of all Kinds dispose the Earth to a Solution sufficient for a subsequent Vegetation, and promote remarkably the Fertility of the Soil.

It is therefore in alkaline Salts, that a Remedy for the *Gout* must be sought for; and if any one can render those sufficiently penetrating, to reach into the remote *Series* of Vessels, where the material Cause of the *Gout* resides, and to attenuate it in such a manner, as to make it capable of perspiring thro' the Pores of the Part affected, he will be able not only to cure a present Fit, but to weed it so far out of the Constitution, as to render it very little, if at all, troublesome for the future.

I must not omit taking Notice of a Topic for the *Gout*, of which I had an Account from a Gentleman of Honour and Fortune, which gave me much Pleasure, as he had us'd it himself for many Years with great Success, and recommended it to many of his Friends, who had found much Relief from the Use of it.

The Receipt is thus:

Take an Earthen Pot, capable of containing five Gallons; fill it full of Elder-flowers full ripe, and clean pick'd, which, as they putrify, will sink down; continue filling it every Day as long as any Flowers are left upon the Trees; then put in three Pints of common Vinegar, and half a Pound of Bay Salt; then stop it quite close, and set it in the Sun for two Months, stirring it every Day with a Stick; then stop it close, and set it in a Cellar. If it breeds Worms, stir it with a little Salt, and mix them together. Apply it every twelve Hours to the Part afflicted with the *Gout*. It must be laid on cold. If too dry, put some Vinegar to it. It must be laid upon the Part of the Feet affected, just when the Violence of the Fit is over, half an Inch thick.

It is remarkable, that this Cataplasm makes the Part perspire excessively, inasmuch that almost every Pore discharges a limpid Liqueur.

If apply'd in the Manner, and at the Time above directed, that is, when the Excess of Pain begins to abate, it removes all that Pain and Lameness, which otherwise afflict the Patient for many Weeks, and sometimes Months, as the Gentleman who communicated this assures me from his own Experience.

If we examine into the Nature of this Composition, we shall find it very likely to perform all that is attributed to it.

The Ingredients are *Vinegar*, *Salt*, and *Elder-flowers*.

The Nature and Properties of Vinegar are sufficiently explained under the Article *Acetum*. As to *Salt*, I must refer my Reader to the Article *SALT*, after having taken Notice, that it contains an extremely penetrating acid Spirit, and an alkaline Earth.

It is not material to our present Purpose, what Properties Elder-flowers are endowed with, or what medicinal Virtues they possess, when in a natural State; because these Flowers, when put into the Pot, putrefy, sink down, turn to a sort of fetid Pulp, lose all the native Virtues of the Plant, and acquire new ones very different from the former. Thus it has been shewn under the Article *ALCALI*, that putrefy'd Vegetables yield by Distillation a volatile, urinous Spirit, and Salt not to be distinguished from Spirit of Hartshorn, or any other animal Spirit or Salt; whereas before Putrefaction no such Spirit could by any Art whatever be procured from them.

By the Mixture therefore of Elder-flowers putrefy'd into an oily Pulp, and abounding with a volatile alkaline Salt, together with Vinegar and Salt, both which are impregnated with a most penetrating Acid, a third Substance is formed very different from the several Ingredients which enter the Composition; for the Acid of the Vinegar acts upon the alkaline Salts of the putrify'd Vegetable; and these again upon the Acid, so as to destroy each

each other, and by their Union to form a *neutral Body*, somewhat like the *Tartarus Regeneratus*, otherwise called *Terra Foliosa Tartari*. But as the Salt used in preparing the *Tartarus Regeneratus* is fixed, and that of the putrefy'd Elder-flowers is volatile, the Mixture resulting from the Union of the latter with Vinegar, must of the two be the most penetrating.

It is now well known, that neutral Substances are extremely saponaceous, and resolvent; and that they will act as a Menstruum upon Substances, especially those which are earthy, which neither Alcalis nor Acids will touch. It is probably such a Menstruum as this, which originally dissolves the Earth in the Soil, and prepares it for the Purposes of Vegetation. And we have some Reason to believe, that the neutral Composition, which is our present Subject, penetrates to the obstructing Matter which forms the Paroxysm of the *Gout*, resolves it, and renders it capable of perspiring through the Pores of the Skin. And I make no doubt, but that whenever a Method can be discovered of conveying alkaline Salts to the remotest Series of Vessels, cloath'd or neutraliz'd in such a manner, that their caustic Quality shall do no Injury to the fine Vessels, the *Gout* will be as easily and effectually cured, as any other Distemper.

ARTHRODIA, ἀρθρώδια, from ἀρθρῶν, to articulate. A Species of Articulation. See ARTICULATIO.

ARTHRON, ἀρθρον, a Joint.

ARTHROSIS, ἀρθρωσις, from ἀρθρῶν, to articulate. The same as ARTICULATIO, which see.

ARTIA, ἀρτία, ἀρτίη, according to some, is taken in the same general Sense as ἀρτηρία; others, as *Erotian* observes, limit it to the Aspera Artery.

ARTICOCA, ARTICOCALUS, Artichoke. The same as CINARA, which see.

ARTICULARIS MORBUS. The same as ARTHRITIS, which see.

ARTICULATIO, ἀρθρωσις, Articulation.

The Bones cannot serve the Purposes they are design'd for, except the several Pieces are fitly adjusted, and then kept together in different Ways. The most antient Osteologists (speaking only of the perfect Bones of an Adult) call'd the first of these *Articulation*, and the other *Symphysis*.

Articulation, thus understood, is of two Kinds, one moveable, by which the Bones are allow'd a certain Degree of Motion; the other immoveable, by which they are fixed together without Motion. The first is commonly call'd *Diarthrosis*; that is, (according to the Expression of *Carolus Stephanus*, an antient Physician of the Faculty of *Paris*) an *Articulation* separated; the other *Synarthrosis*, or an *Articulation* conjoined.

In the *Diarthrosis*, or moveable *Articulation*, the Pieces are really separate; and the Parts in which they touch, are each of them cover'd by a smooth Cartilage, by means of which they easily slide upon one another. In the *Synarthrosis*, or immoveable *Articulation*, the Pieces are joined together in such a manner, as that the Parts in which they touch have something particular on their Surface, and cannot slide upon each other.

There is still another Species of *Articulation*, which cannot well be reduced to either of the two former, because it partakes of both; and therefore I think it necessary to establish a third Kind, by the Name of *Amphiarthrosis*, which agrees better to this Sort, than to the other *Articulations*, to which it has sometimes been apply'd.

DIARTHROSIS.

Diarthrosis is either manifest with large Motion, or obscure with small Motion. Each of these again is of two Kinds, one *indeterminate*, or with Motion many different Ways, as that of the Os Humeri upon the Scapula, or of the Os Femoris on the Os Innominatum; the other *alternative*, or with Motion confin'd to two opposite Sides, as that of the Ulna on the Os Humeri, and of the two last Phalanges of the Fingers on the first and second.

A Bone is said to be moveable many different Ways, when it can be turn'd upwards and downwards, forwards and backwards, to the Right and to the Left, and quite round.

The Motion quite round is made either on a Pivot, that is, about an Axis, or in the manner of a Sling, where the Bone describes a sort of Cone, or the Figure of a Funnel, one End of it moving in a very small Space, the other in a large Circle.

The first of these round Motions is termed *Rotation*, by Anatomists; the other is only a Combination of several Motions upwards, downwards, &c. and it must be remarked, that *Rotation* is not to be met with in all the *Articulations* for Motion many different ways; for Example, the *Articulation* of the first Phalanges of the Fingers with the Metacarpal Bones does not admit of it.

Moreover this *indeterminate Diarthrosis* is of two Kinds; one *orbicular* or *globular*, the other *flat* or *planiform*.

The *orbicular Diarthrosis* is when the round End of one Bone moves in the Cavity of another, more or less proportionable to it, as the Head of the Os Femoris in the Acetabulum of the Os Innominatum; or when the Cavity in one Bone moves upon

an Eminence in another, as the Bases of the first Phalanges on the Heads of the metacarpal Bones.

The planiform *Diarthrosis* is when the articulated Bones slip upon one another, much in the same manner as when we rub the Palm of one Hand against the other: This *Articulation* is found in the Bones of the Carpus and Tarsus, and in the oblique Processes of the Vertebrae.

The Antients call'd the first of these two Kinds of *Articulation*, *Enarthrosis*; the other *Arthrodia*. Some modern French Writers seem to comprehend both under the Word *Genou*, a Term borrowed from Workmen, who probably first ignorantly took it from the human Body, to apply it to their Instruments. I own, that this Term, as used and explained by them, agrees well enough to all the Degrees of the *orbicular Diarthrosis*; but there are undoubtedly many *Articulations* of the other Kind so very flat, that a skilful Workman would not allow them the Name of *Genou*.

The *alternative* or *reciprocal Diarthrosis* bears some Resemblance to a Hinge; and for that Reason the antient Greeks termed it *Ginglymus*, which signifies the same thing; and has accordingly been translated in some modern Languages. It is called by Mechanics *Charnall*.

It has been divided into several Kinds; but, properly speaking, I think there can be but two. The first is that which is confined to *Flexion* and *Extension*; and as in one of these Motions the two Bones always make an Angle, I term it an *angular Ginglymus*. This is exactly the same with the Motion of a Hinge. The second Kind is adapted only to small Turns toward each Side; or to small lateral Rotations, in the Language of Anatomists; and therefore I term it a *lateral Ginglymus*. In each Kind several Differences are to be taken notice of.

In the *angular Ginglymus* either each Bone partly receives, and partly is received by the other, there being reciprocal Eminences and Cavities in each, as in the *Articulation* of the Os Humeri with the Ulna; or there are only several Eminences in one Bone, received into the same Number of Cavities in the other, as in the *Articulation* of the Os Femoris with the Tibia.

The *lateral Ginglymus* is either single, as in the *Articulation* of the first Vertebra of the Neck, with the Apophysis Denti-formis of the second; or double, that is, in two different Parts of the Bone, as in the *Articulation* of the Ulna with the Radius.

It must in general be observed, concerning these kinds of *Articulations*, that some of them are more perfect and close than others; and that they are not all confined to *Flexion* and *Extension*, or to the reciprocal Turns already explained, as we shall afterward see.

The *obscure Diarthrosis*, or that which admits only of small Motions, is also of different Kinds. Examples thereof are found in the *Articulations* of the Bones of the Carpus and Metacarpus, and of the Fibula with the Tibia.

This *Articulation* was formerly called doubtful and neutral, and by some *Amphiarthrosis*, while others reduced it to *Synarthrosis*. The first of these Names might pass; the rest are improper.

SYNARTHROSIS.

Synarthrosis, or the *Articulation* of Bones so join'd together as to remain fixed in their Situation, is of two Kinds; one is made by Ingrailing, and the other in the same manner as a Nail or Pin is fixed in Wood. The first may again be subdivided into a deep and more superficial Kind. The deep Kind is observable in the *Articulations* of the broad Bones. The Antients term'd it *Suture*, because of some Resemblance it bears to a coarse Seam, as is seen in the upper Bones of the Skull. It is made by Jags, Notches, and Holes in each of the articulated Bones, by which they are mutually indented, much after the same manner as what is called *Dovetailing* by the Joiners. By the Antients it was called *Unguis*, probably because the indented Pieces are rounded like Nails.

The other Kind is that which is observed in Bones joined together by more extended Surfaces, in which no Indentation appears outwardly. This the Antients termed *Harmonia*, and the *Articulations* of some of the Bones of the upper Jaw were given as Examples of it. But though they describe it as running in a single Line, they did not mean this in a strict Sense, but only that the Joint was like that of two rough Boards without Grooves. They have expressly told us, that some small Inequalities might be observed in these Joints; and some of them have used the Terms of *Suture* and *Harmonia* indifferently.

Suture differs very much from *Harmonia*. In the first, the Jaggings and Notches are very considerable, and the Indentation is made likewise by small lateral Eminences therein; so that the Bones thus join'd cannot be separated without breaking a great many of these Jags, and their little Eminences; whereas those that are joined by *Harmonia*, may easily be parted without breaking any thing, or at most but very little.

Harmonia differs from *Suture*, in that the Inequalities therein are very small, their Union is superficial, and there is no Ap-

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pearance of them on the Surface of the Bones; the Joint there representing only a kind of Line, more or less irregular.

The other Kind of *Synarthrosis*, an Example of which we have in the *Articulation* of the Teeth, is called *Gomphosis*, a Greek Term still retained.

AMPHIARTHROSIS.

The third general Kind of *Articulation* partakes of both the former two, the moveable and immoveable; and for that Reason I have termed it *Amphiarthrosis*, or the mixt *Articulation*; as resembling *Diarthrosis* in being moveable, and *Synarthrosis* in its *Connexion*.

The Pieces which compose it have not a particular Cartilage belonging to each of them, as in the *Diarthrosis*; but they are both united to a common Cartilage, which being more or less pliable, allows them certain Degrees of Flexibility, though they cannot slide upon each other, such is the *Connexion* of the first Rib with the Sternum, and of the Bodies of the Vertebrae with each other.

SYMPHYISIS.

Having examined the *Articulation* of Bones, we come now to consider their Union or *Connexion*, properly so called, which the Antients named *Symphysis*, taking this Term in an improper or large Sense, when they apply'd it to the *Connexion* of Bones; but in its proper Meaning they used it only to signify *Ossification*.

The Authors who say, that the Antients took *Symphysis* for a Species of *Articulation*, misunderstand them; neither are they more in the right, who advance that the Antients looked upon *Articulation* and *Symphysis* as opposite to each other. If they speak of the most early Antiquity, both these Propositions are false.

In the first Place, the Antients do not confound *Articulation* with *Symphysis*, but plainly distinguish them, taking *Articulation* for the simple setting of Bones together, independently of their being connected, or kept together. In the second Place, they do not look upon these two as Opposites, that is, where they talk of *Articulation*, they do not exclude *Symphysis*; because their Writings clearly shew, that in order to compose the Skeleton, they thought it necessary to bring them both in together.

The Words of *Galen* alone are sufficient to prove this. In general he tells us, "That the Skeleton is a regular Disposition of all the Bones connected together:" And afterwards, "That their Composition is by *Articulation* and *Symphysis*;" "that *Articulation* consists in the Bones being naturally rank'd, *Symphysis* in their being naturally connected." In fine, after having enumerated all the Differences of *Articulation*, he declares in plain Terms, that by *Symphysis*, or the Union of Bones, he understands not only that, by which two or more Pieces become one by Age, but also that, by which the Bones are naturally united and connected together in different ways. Of these he reckons three, (as his Predecessors had done) by Cartilage, Ligament, and Flesh. The first Kind of *Symphysis* they called *Synchondrosis*; the second, *Synneurosis*; and the third, *Syffarcosis*. He likewise takes Notice, that his Predecessors did not take the Word *Synneurosis* so far in a literal Sense, as if it signify'd the Union of Bones, by means of Nerves; but that they were accustomed to call both Ligaments and Tendons by the Name of Nerves, though they were very well apprised of the Distinction of these three things.

The Distinction of *Symphysis* into that without a Medium, and that with a Medium, can have no Place here; for the first, of which the lower Jaw is cited as an Example, belongs not to the *Connexion* of Bones, but to their Formation while imperfect; and therefore may be called *Symphysis* of *Ossification*; and the other *Symphysis* of *Articulation*.

In another Sense, however, this Division may still be made use of in this manner: All the Pieces which compose the bony Fabric are naturally connected and united together. This Union or *Connexion*, which, with the Antients, I term *Symphysis*, is either without or with a Medium.

Symphysis, without a Medium, is where the articulated Bones support themselves in their Situation, without any other Assistance than that of their Conformation only; thus the parietal Bones are mutually fixed by their Indentations, and so give us at once an Example of *Articulation* and *Symphysis*. In the same manner the Bones in the Basis of the Skull are supported by those which make the convex Part of it. In a natural State however, none of these Pieces touch one another immediately, but are separated by Membranes which run in between them.

The *Connexion* or *Symphysis* of Bones, with a Medium, is of three Kinds, cartilaginous, ligamentary, and fleshy or muscular, that is, as the Antients termed them, by *Synchondrosis*, *Synneurosis*, and *Syffarcosis*.

Synchondrosis, or the cartilaginous *Symphysis*, is either moveable, as in that by which the Bodies of the Vertebrae are kept together, on which joins the first Rib to the Sternum; or immoveable, as that of the Ossa Pubis, in an ordinary State. The

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Symphysis of *Ossification* is different from this, and the Union of Epiphyses belongs to that, rather than to the *Symphysis* of *Articulation*.

Synneurosis, or the ligamentary *Symphysis*, is found in all the Joints designed for Motion.

Syffarcosis, or the muscular *Symphysis*, is as real as the two former, and may be said to be much more general, because it accompanies and strengthens the others, and supplies what is wanting in them. The *Connexion* of the Os Humeri with the Scapula is a sufficient Proof of this; for the Strength and Security of that Joint is owing more to the Muscles, than to the Ligaments. *Winslow's Anatomy*.

ARTICULI *Plantarum* are those Parts of Plants which swell into Nodes, or Joints, which usually send forth Branches: *Blancard*.

ARTICULUS, ἄρθρον. A Joint, or *Connexion* of Bones adapted for the Performance of Motion. *Blancard*.

ARTIFEX, δημιουργός, *Hippoc.* τεχνίτης, *Galen*. An Artift. What the Word signifies in general, is well known; but it is often appropriated to the Physician, who exercises the Art of Medicine from rational Principles confirmed by Experience. Sometimes the Chymists and Spagirists take the Liberty to apply the Terms to one another. *Castellus*.

ARTIFICIALE. Whatever is made or prepared either of the native Stone of Cinnabar itself, or from the Vein of Cinnabar. *Rulandus*.

ARTIOS, ἄριστος. Sound, whole, perfect, complete in all its Parts, unhurt, *Hesych.* Ἀρίως, the Adverb, signifies wholly, perfectly, ἀρμόδιως, that is, coherently, and fitly, as *Hesychius* expounds the Word. Ἀρίως also signifies the same as ἀπαρτίως, ἀπνευσμένως, and ἀκριβώς, Adverbs importing Exactness, Adequateness, Exquisiteness, in which Sense it is used by *Hippocrates* in his Aphorisms, and *Lib. de Humoribus*.

Ἀρίστοι οἱ σπόνδυλοι ἐν τῷ ἀλλήλοις, "the Vertebrae are within-side even with each other." *Lib. de Art. et Mochl*.

Ἀρίαι ἡμέραι, with respect to Crises, are even Days, to which *Hippocrates* opposes περιαι, odd, as ἄριστος ἀριθμὸς καὶ περιωδὸς is an even and an odd Number. So *Lib. 1. Epid.* τὰ δὲ παροξυνόμενα ἐν ἀρίστῃ, κρίνεται ἐν ἀρίστῃ ὥν δ' ὁ παροξυσμοὶ ἐν περιαιῇ, κρίνεται ἐν περιαιῇ. "If the Paroxysms happen on even Days, the Crisis will be on an even Day; but if they molest the Patient on odd Days, the Crisis will in like manner fall out on an odd Day." Again, *Lib. eodem*, ἐστὶ δ' ἡ πρώτη κρίσιμος τῶν περιόδων ἐν ταῖς ἀρίστης κρινόμεναι δ'. "Of those periodical Fevers which come to a Crisis on an even Day, the first critical Day is the fourth."

ARTIPHYES, ἀρίστους, from ἀρί, just now, and φύω, to produce, signifies new-born; but ARTIPHYES, ἀρίστους, from ἀρί, whole, and φύω, is complete. Thus in *Hippocrates*, περιέτλημέναι ἀρίστους ἀριθμὸς καὶ τέλει is a complete and perfect Number.

ARTISCUS, ἄρισκος, from ἀρί, Bread, a Loaf, from its being in the Figure of a little Loaf, signifies in general a Troche of any Kind; but specially, and καθ' ἑξοχὴν, artisci are Troches prepared of Vipers Flesh. *Castellus*.

ARTISTOMA, ἀρίστωμα, in *Hippocrates*, περὶ τῶν ἐν κεφαλῇ τραυμάτων, is expounded by *Galen* in his *Exegesis*, παλινῶδες ὅμαλόν, "plain and smooth on all Sides." ARTISTOMOS, ἀρίστωμος, in another Sense, is one who pronounces the Words of any Language perfectly and entirely without Mutilation.

ARTYPOCHROS COLOR, ἀρίωποχρος χροίον, in *Hippocrates*, περὶ τῶν ἐν τῷ σπλῆνι παθόντων, is a palish and yellowish Colour, which attends a Disorder of the Spleen.

ARTIZOA, ἀρίζωα, from ζῶν, Life, signifies short-liv'd, and is expounded by *Galen* and *Hesychius* ὀλιγοχρόνια, "enduring but a little Time." *Hippocr.* περὶ ἐπικυσιῶν, ταῦτα τὰ παῖδια ἀρίζωα, "these Children are but short-liv'd."

ARTOCREAS, ἀρίσκρας, from ἀρί, Bread, and κρέας, Flesh. The same as PASTÆTUM. A sort of Pasty.

ARTOMELI, ἀρίμελι, from ἀρί, Bread, and μέλι, Honey. A Cataplasim made of Bread and Honey. *Blancard*.

ARTOPTA, ἀρίπτη, a Vessel to bake a Pye or Pudding in, metaphorically apply'd to such Women as have easy Labour. *Castellus*.

ARTOPTICIUS PANIS, from ἀρί, Bread, and ὀπτάω, to toast. Toasted Bread. *Blancard*.

ARTOS, ἄριστος, Bread. Ἀρίστος, in *Hippocrates*, περὶ γυναικείης φύσεως, is a Mass of farinaceous and other Substances inclosed in a Linen Cloth, and apply'd warm as a Fomentation to the Uterus. Of ἀρίστος, as it signifies Bread, there are many Sorts to be found in *Hippocrates*, as

Ἀρίστος ἄζυμος, from α Negative, and ζύμω, Ferment, or Leaven; unleavened Bread; this nourishes most, and affords the least Excrement. *Lib. 2. περὶ διαίτης*.

Ἀρίστος ἀνίσχυρος ἢ ἀνίσχυρος, from ἀνί, mere, very, and πυρεός, Wheat. Bread made of Meal, where the Bran is not separated from the Flour, but the whole Corn goes into the Loaf. This is drying, and easily passes off. *Lib. περὶ τῶν ἐν τῷ σπλῆνι παθόντων*.

**Ἀρτοποιία* *διπυρίτης* ἢ *διπυρῶν*, from *δις*, twice, and *πῦρ*, the Fire. Bread twice baked, or that has twice proved the Fire. It is prescribed in the Dropsy. **Ἀρτοποιία* *μεν* *χρῆσθαι* *πυρίνῃ ἐπιπῶ*, ἢ *τῶν σκληρῶν διπυρίτην*. "Let him use wheaten Bread toasted, or hard Bread twice baked." *Lib. prædiæ*. This is also called *διεσθῆναι*, and dries powerfully.

**Ἀρτοποιία* *ἐγκυρῆς*, from *κρύπτω*, to hide. Bread baked under the Embers, called by the Romans *Panis Subcineritius*. This, according to *Galen*, was the worst of all Bread, being the driest, and least nourishing. *Lib. 2. περὶ διαίτης*, and *Lib. 2. περὶ γυναικ.*

**Ἀρτοποιία* *ἐξοπῆς*, from *ἐπιπῶ*, to toast. Toasted Bread, which is very drying, and prescribed by *Hippocrates* in a Dysentery, *Lib. 7. Epid.* and *Lib. περὶ τῶν εἰσὶ παθῶν*, where, in one Place, it is call'd *ἄρτοποιία* *ἐκωπῆς*, "stale toasted Bread;" and *Lib. περὶ ἀρχ. ἡσπ.* *ἄρτοποιία* *ἐξοπῆς* ἢ *ἐνωμῶν*, "toasted or crude Bread," are oppos'd one to another.

**Ἀρτοποιία* *ἐχραεῖτης*, from *ἐχράεω*, a Crust; Bread broil'd on the Hearth, or a Gridiron; whence some call it *Panis focalis*, *focarius*, or *craticularis*, from *Focus*, a Hearth or Fire-place, and *Craticula*, a Gridiron. This is a very bad sort of Bread, in *Galen's* Opinion, because the Outside is burnt to a Crust, while the Inside remains crude. It easily passes off, but hurts the Stomach. According to *Hippocrates*, *Lib. 2. περὶ διαίτης*, such Bread (*ἐχραεῖται ἄρτοι*) is less nutritive than what is baked in an Oven, but more drying, because more scorched by the Fire.

**Ἀρτοποιία* *ζυμῆς*, from *ζύμη*, Leaven. Leaven'd Bread, what is a little fermented. This Sort is light, has an easy Passage, nourishes little, and is easily digested. *Hippocr. Lib. 2. περὶ διαίτης*.

**Ἀρτοποιία* *ὀπνίτης*, from *ὀπνός*, an Oven. Bread baked in an Oven. This is very nourishing, because very little burnt. *Hippocr. Lib. prædiæ*.

**Ἀρτοποιία* *καθαρῆς*, pure Bread; that is, Bread made of fine Flour. This is oppos'd to *συγκομις* (see below) and *ἀνίσχυρος* (see before) in several Treatises of *Hippocrates*. Opposite to this may also be reckon'd *ἄρτοποιία* *ρύπαρης*, and *ἀχυρῶδης*, from *ρύπῃ*, Filth, and *ἀχυρῶν*, Chaff; impure Bread, and chaffy Bread; and also what is call'd *πιτυρῶδης*, and *πιτυεῖτης*, from *πιτυρῶν*, Bran, branny Bread; for, says *Galen*, *Lib. 2. de Cur. ad Glauc.* as in fine or pure Bread we have the Meal, not as Nature made it, but cleansed from the Bran; so in the coarse branny Sort the finest Flour is taken out.

**Ἀρτοποιία* *κλιβαρίτης*, (from *κλίβανος*, a little moveable Oven, made of Earth, Iron, Copper, or any other convenient Matter) Bread baked in a portable Oven, by some call'd *Panis Testuaceus*, from *Testus*, the Vessel in which it was baked. This sort of Bread, according to *Hippocrates*, *Lib. 2. & 3. περὶ διαίτης*, is very dry, but not very nourishing. In *Galen's* Opinion, *Lib. 1. de Alim. Facult.* it is the best, with respect to its way of Preparation and Dressing; and *Diphilus*, in *Athenæus*, *Lib. 3.* extols it as having all good Qualities, and being preferable to all other Kinds; for it is grateful to the Stomach, generates good Juice, is easily digested, readily distributed, and neither binds the Belly, nor distends it with Inflations.

**Ἀρτοποιία* *ὀβελιάς*, or *ὀβελίας*, from *ὀβελός*, a Spit. Bread spitted and roasted. It is moderately nutritive, drying, and is not much burnt, *Hippocr. Lib. 2. περὶ διαίτης*; where it is also call'd *ὀβελιῆς*. In *Athenæus*, *Lib. 3.* it is said to be call'd *ὀβελίας* *ἄρτος*, ἵτοι ὅτι ὀβολῷ *πιπερῶσκειται*, ὥς ἐν τῇ *Ἀλεξανδρείᾳ*, ἢ ὅτι ἐν *ὀβελίσκοις* ἐπιπῶται. "Either because it was sold for an Obolus, as in *Alexandria*, or because it was roasted on Spits."

**Ἀρτοποιία* *ἐκ πυρῶν*, Bread of Wheat. It is very nourishing, and yields but little Excrement. *Lib. 2. περὶ διαίτης*, & *Lib. περὶ ἀρχαῖς ἡσπ.*

**Ἀρτοποιία* *ἐκ πυρῶν ἀπίσων* ἢ *ἐπισημένων*, (from *πίσσω*, to pull off the Rind or Bark, or cleanse from Husks) Bread made of Wheat husk'd, or unhusk'd; that is, cleansed or uncleansed, *Lib. περὶ ἀρχαῖς ἡσπ.* Bread *ἐκ πυρῶν ἀπίσων* seems to be the same as the *πισυρῶδης*, "branny," which has not been cleansed from the Bran. There is also *πυρῶν ἄρτος* ὀπνός, ἢ *τῶν σκληρῶν πυρῶν*. "Wheaten Bread toasted, or made of harden'd Wheat," which was prescribed in Dropsies, *Lib. περὶ τῶν εἰσὶ παθῶν*.

**Ἀρτοποιία* *πυρῶν σιταρίων* *πρὸς χυλῶν* *πρὸς πίστεων* *ἐζυμωμένων*, Bread of *Sitanian* Wheat, (a sort of Wheat that comes to Perfection in three Months) fermented with the Juice of Bran, *Lib. 3. περὶ διαίτης*. This easily passes thro' the Body.

**Ἀρτοποιία* *σεμιδαλίτης*, from *σεμιδάλης*, fine Flour. Bread made of fine Flour. This was powerfully nutritive, tho' less than what was made of *Alica* or *Siligo*, and but little of it pass'd thro' the Body, *Lib. 2. περὶ διαίτης*. *Galen*, as well as *Celsus* and *Paulus*, tells us, that this kind of Bread affords most Nourishment, next to what is made of *Siligo* (see below); and *Philistion*, in *Athenæus*, will have it more strengthening than Bread made of *Alica*.

**Ἀρτοποιία* *συγκομις*, from *συγκομίζω*, to collect or bring together, Bread made of all the Parts of the Corn taken together. This is drying, and easy of Passage, *Lib. 2. & 3. περὶ διαίτης*. This is oppos'd to *καθαρός*, "pure," *Lib. de Rat. Vict. in*

Morb. acut. and *Iib. περὶ ἀρχ. ἡσπ.* *Galen*, in his *Exegetik* expounds *συγκομις* *ἄρτοι*, by *ρύπαρσι* *διὰ τὸ πάντα ἀνα τὰ ἀλευρὰ συγκομίζεσθαι*, καὶ μὴ διακρίνεσθαι. "Coarse, because all Parts of the Meal were thrown together without Distinction."

**Ἀρτοποιία* *ἐκ χένδρων* ἢ *χονδρείτης*, from *χόνδρος*, *Alica*. Bread made of *Alica*. It is extremely nourishing, and but little of it passes off as excrementitious, *Lib. 2. περὶ διαίτης*.

**Ἀρτοποιία* *ἐκωπῆς*, stale Bread. It is drying, not very nutritive, and attracts Phlegm, *Lib. περὶ τῶν ἐν τῷ παθῶν*. It is call'd by *Celsus*, *Lib. 1. Cap. 3. Panis Hesternus*.

There are other Distinctions of Bread in *Hippocrates*, as τῷ *χυλῷ* *πεφουρημένῃ*, Bread kneaded and macerated in the Juice of Wheat: This is very nutritive, light, and easy of Passage, *Lib. 2. περὶ διαίτης*. **Ἀρτοποιία* *πολλῷ ὕδατι* *πεφουρημένη*, ἢ *ἐξ ὕδατος*, Bread work'd up with a great deal of Water, or not work'd at all, *Lib. περὶ ἀρχ. ἡσπ.* **Ἀρτοποιία* *ὁι μεγίστοι*, Bread in large Loaves: Such Bread is more nourishing than what is in smaller Loaves, because less burnt and dry'd, *Lib. 2. περὶ διαίτης*. **Ἀρτοποιία* *θερμῆς*, hot Bread, which dries the Body; *ἄρτος* *ψυχρῆς*, cold Bread, which is less drying than the former, but nourishes little, and in some measure emaciates, *Lib. 2. περὶ διαίτης*.

Besides the foremention'd Sorts there was a more modern kind of Bread in Use among the Romans, which was made of *Siligo*, the finest and purest Flour, of which *Pliny* says, *Siliginem proprie dixerim Tritici Delicias*; *Caesal. de sil.* & *fine virtute*, & *fine Pondere*: "Siligo may properly be call'd the delicious Part of the Wheat; it is Whiteness, without Virtue or Weight," *Lib. 18. Cap. 8.* And *Galen*, speaking of the different sorts of Bread, has these Words: *Ὁ μὲν καθαρώτατος ἄρτος καλεῖται σιλιγνίτης, ὁ δ' ἐφεξῆς σεμιδαλίτης, ἀλλ' ἢ μὲν σεμιδαλὶς ἑλληνικὴν τε καὶ παλαιὰν, σιλιγνίτης ὁ καὶ ἑλληνικὸν, ἐτέρας ὁ ἀσὶν ὀνομάζοντες καὶ ἔγωγε*. "The finest Bread is call'd Silignites; the next in Fineness, Semidalites; now Semidalis is an old Greek Word, but Silignis is not Greek, and I have no other Name for it." *Silignis* is plainly coin'd from the Latin *Siligo*. He goes on to compare the different kinds of Bread, with respect to Nutrition, as follows: *Τετταρτώτατος ὁ σιλιγνίτης ἄρτος, ἐφεξῆς ὁ σεμιδαλίτης, καὶ τρίτος ὁ μεσῶς καὶ συγκομις, ὁ καὶ ἀνίσχυρος, ἐφ' ᾧ τέταρτος ἐστὶ τὸ τῶν ρυπαρῶν ἔσθῃ, ὡν ἔχεται ὁ πίστεας, ὅς ἐστι καὶ ἀτερεώτατος ἐστὶ*. "The most nutritive of these sorts of Bread is the Silignites; the next, in that respect, is the Semidalites; the third is a middle Kind, call'd also *Syncomistos* and *Autopyrites*; the fourth is a kind of black and coarse Bread, the worst Sort of which is the *Pityrias*, which also affords the least Nourishment." *Galen. de Alim. Fac. Lib. 1. Cap. 2.*

ARTUS, τὰ κῶλα. The extreme and most compacted Parts of the Body, as the Hands and Feet, *Castellus*. According to others, they are the Members which extend themselves from the Trunk, and are divided into Joints, *Castellus. Blanchard*.

ARTYMA, ἄρτυμα, from *ἀρτύνω*, to season, or prepare. The same as *CONDIMENTUM*, which see.

ARUBUS, Crude Butter. *Johnson*.

ARVINA, ἀρβύνα, εἶαρ. The same as *ADERS*, which see.

ARUM, Offic. J. B. 2. 783. Chab. 258. Raii Hist. 2. 1208. Synop. 3. 266. Dill. Cat. Gill. 56. *Arum vulgare*, Ger. Emac. 834. Merc. Bot. 21. Phyt. Brit. 11. *Arum vulgare maculatum*, & *non maculatum*, Park. Theat. 372. *Arum vulgare maculatum* & *fine maculis*, Mer. Pin. 11. *Arum maculatum maculis candidis vel nigris*, & *non maculatum*, C. B. Pin. 195. Tourn. Inst. 158. Elem. Bot. 130. Hist. Oxon. 3. 542. Rupp. Flor. Jen. 203. Boerh. Ind. A. 2. 74. Euxb. 26. CUCKOW-PINT. Dale. Or, WAKE-ROBIN.

Arum, among the Syrians, is call'd *Lupha*. It shoots forth Leaves like those of the *Dracunculus*, but smaller, and not so spotted: The Stalk is a Span long, reddish, and shaped like a Pestle, on the Top of which grows a yellowish Fruit. The Root is white, much like that of the *Dracunculus*; and, being boil'd, loses so much of its Acrimony as to become eatable. The Leaves are pickled for Food, and, being left to dry of themselves, are boil'd and eaten.

The Root, Seed, and Leaves, have the same Virtues as those of the *Dracunculus*; besides which, the Root is apply'd as a Cataplasin, with Cow-dung, to the Parts affected with the Gout. It is preserved like the Root of the *Dracunculus*, and is commonly so little acrimonious as to be eatable, *Dioscorides, Lib. 2. Cap. 197.*

The Roots of *Wake-Robin* are roundish and tuberous, about as big as a Walnut, of a white Colour on the Inside, sending from the Sides several white Strings, by which it is fix'd in the Earth: The Leaves are long and large, of a shining green Colour, in Shape like the Head of a Spear, or a barb'd Arrow; in some Plants they are full of black Spots. From among the Leaves arises a round Stalk, having, at the upper Part, a long skin or Husk, closed at Bottom, and open at the Top; of a greenish Colour on the Outside, and purplish within; in which is inclosed a long naked purplish cylindrical *Pistillum*, encompass'd on the lower Part with a Circle of Claves standing

standing above the Rudiments of the Berries; which, after the Pistillum and its Covering are fallen off, grow to be large round Berries, of a yellow-red Colour, full of Pulp, each containing one round Seed. The whole Plant, Root, Leaves, and Seed, are very hot and biting, inflaming the Mouth and Throat for a long time. It grows every-where in Hedges and dry Ditches, and flowers in May, and the Berries are ripe in July.

This Herb is call'd *Aron*, *Jarus*, *Pes Vituli*, *Barba Aronis*, *Sacerdotis Virile*, *Serpentaria Minor*, *Dracontia Minor*, *Alimnum*. The Root has a pungent Taste like Ginger, which burns the Tongue. But 'tis said, that in the Fields about *Cyrene* there is an *Arum* found which eats like a Turnep, and is entirely void of Acrimony. It is gather'd in the Month of March, and, when dry, is principally used in the Shops of Apothecaries. It is of a hot and drying Nature, dissolves and liquifies the coagulated Humours of the Body, is an excellent Antiscorbutic, and opens and dissolves internal Obstructions, especially in Dropsical Cases. It purifies and sweetens the Blood when impregnated with saline Particles, opens the Breast, and facilitates Expectoration in Disorders of the Breast, and Coughs; for Instance,

Take of the best fresh Arum-root, half an Ounce; boil it in White Wine till it becomes soft, and make it into a Linctus, with Syrup of Hyssop.

It relieves old Coughs, and is good for Consumptions, especially when it is often moisten'd, and afterwards dry'd, with Tincture of the Flowers of Daisy and wild Poppy, *Joh. de Muralt. in Hipp. Helvet. P. 653. Ephem. N. C. Dec. 2. Ann. 5. Obs. 180. Dieuches*, according to *Pliny*, L. 24. N. H. 16. gave the Powder of it, mix'd with Meal and baked in Bread, to those who were afflicted with Coughs, heavy Sighs, or an *Orthopnea*, or a Spitting of purulent Matter. It promotes Urine, and cleanses the Urinary Vessels, and the Matrix. It promotes the Menfes when obstructed, warms the Stomach when cold, excites the Appetite, and strengthens the Digestion. *Hartman*, in *Prax. Chym. Helmont. Pharmac. ac Dispenf. Modern. N. 46.* says, that it cures Ruptures; as also long and tedious Fevers. *Vid. Dan. Ailii Pharm. Spagir. L. 2. C. 10. Pet. Laurentberg. Appar. Plant. L. 2. C. 6.* and is very good in Hysteric and Epileptic Cases. *Greger. Horstius*, with the Root of it alone, recover'd a *Hessian* Girl of five Years old, who had been entirely deprived of the Use of her Speech for almost a whole Year, L. 3. *Obs. Med. 24.* The same is related by *J. Hotnung*, in *Cista. Med. Epist. 132.* The Root is also an excellent Medicine against the Plague and Poisons, *Plin. l. H. Trag. L. 2. Hist. Plant. C. de Aro. Jo. Bruner. de re Cib. L. 8. C. 6. Tarqu. Schnelleberg. Tr. de 20 Herbis Pestilentia veneno adversantibus*, who styled this Plant the *Miracle of Nature*, on account of its remarkable Efficacy against the Plague, *M. Unzer. Antidot. Pestilent. L. 2.* The Root when fresh, if boil'd, warms and corroborates the Stomach, strengthens the Appetite, purges the Breast, and is good for Rheumatic Disorders, and the Vertigo; as also for Stiffness of the Limbs, Swellings, and fetid Wounds. The Herb itself, boil'd with Victuals, makes People lean. The Leaves, when fresh, as also the Powder of the Root, cure inveterate Ulcers, Fistulas, fetid Cancers, and the Bites of venomous Animals, if they are apply'd to them. *Tragus* says, that for pestilential Swellings he knew no Herb more efficacious, than the Leaves of *Arum*, apply'd green to them. *Georg. a Torre* has observ'd, more than once, from undeniable Experience, that Burns are heal'd by its Leaves when apply'd to them, and frequently renew'd, *De Hist. Plant. L. 2. C. 244.* In order to cure Ulcers and Wounds, some People make an excellent Ointment of its Root, reduced to Powder, and boil'd with Butter made in the Month of May. *El. Beynon*, that tender-hearted Samaritan, commended the Root of *Arum*, mix'd with Flowers of Sulphur, as one of the most efficacious Remedies in a Phthisis, *Jo. Dolæus, Encycloped. Med. L. 2. C. 4.* See also *El. Beynon, P. M. 23.* The Juice, express'd from the bruised Root, is good for a Polypus of the Nose, if put up the Nostrils on a little Cotton. The Fetuses of all Animals in Nature are expell'd by *Arum*, says *Pliny*. Many reduce the Root to a Powder, and apply it to the Part affected by the Gout, *Crat. l. 2. Conf. 26.* The Water distill'd from its green Leaves in Spring, is an admirable Remedy for the Scurvy, *Tb. Willis, Tr. de Scurbut. C. 7.* It is also good for Maniacs, and such as are melancholy. Many distil, from the whole Substance of this Herb, a Water, which they give to those who labour under Ruptures. This Water is also good against the Plague, purifies old Wounds and Ulcers, takes Spots off the Face, whitens the Skin, and destroys the Wrinkles of the Face. Several People inspillate the Juice of the Root at the Sun, and, when they want to use it, dissolve it in Rose-water, with which they wash their Faces. Country Girls, when its Kernels are ripe, use them for a Varnish, to give a purple Colour to their Cheeks, which they rub heartily with them, almost to the Loss of the Epidermis or Scarf-skin, *Georg. a Torre, L. C.* The *Tragea*

Stomachialis of *Birckmanus*, made of Arum-root, describ'd by *Quercetan, Pharm. Restit. L. 2. C. 20.* is known in the Shops of some foreign Apothecaries. This Medicine warms cold Stomachs, promotes Digestion, procures an Appetite, prevents the Vertigo, removes Obstructions of the Liver, Spleen, and Mesentery; and is good for those who labour under Hypochondriac Disorders, Melancholy proceeding from Flatulencies, or the Scurvy. It is also serviceable in the Chlorosis in Girls, Cachexies, Swellings of the Belly, beginning Dropsies, Quartan, and other protracted and intermitting Fevers, and other Disorders caused by gross and corrupt Matter in the Stomach. It is also given for the Stone. In Apothecaries Shops there was formerly prepar'd, from its Root, a particular farinaceous white Substance or Powder, call'd by Chymists *Fæcula*, from the Latin Word *Fæces*, because that Substance separates, of its own Accord, from the rest of the Liquor, and subsides to the Bottom of the Vessel. It operates in the same manner with the Root, tho' more mildly; for which Reason 'tis successfully used among the Pectoral Tinctures and Powders, employ'd to dissipate Phlegm, and glutinous Humours, and facilitate Expectoration. It also removes inveterate Obstructions, and is an efficacious Remedy in Quartan Fevers, Cachexies, and Scurvies. *J. Const. de Rebecqu. Atr. Medicin. Helvet. P. M. 242. Jo. Orto. Helbig. in Ephem. N. C. Dec. 1. An. 9. & 10. Obs. 194.* says, that, among the *Indians*, the Root of *Arum*, boil'd, is used instead of Bread.

PULVIS RADICUM ARI COMPOSITUS: Compound Powder of Arum-root.

Take of the Root of spotted Arum, two Ounces; of the common Acorus-root, and Saxifrage Pimpinell, each one Ounce; of Crabs-eyes, half an Ounce; of Cinnamon, three Drams; of Salt of Wormwood, one Dram; and let them be made into a Powder. *N. H.* The Arum-root is always to be fresh added to it.

This is but lately introduced into the Dispensatory; and here is left out the Salt of Juniper, which was order'd in the preceding, because it is a thing not usually made, and answers no Intention, but what is provided for by the Salt of Wormwood; but this makes it necessary to be kept close from the Air, because it will else grow moist, and spoil the Medicine; tho' the principal Necessity of so keeping it, is to preserve the Pungency and Volatility of the Ingredients, which otherwise would soon exhale: And for the same Reason also, it is now directed to mix the *Arum* Root always fresh, as it is used; because that is the chief Ingredient, and soonest spoil'd by keeping. *Quincy's London Dispensatory.*

Ray enumerates the following Species in his Chapter of *Arum*:

1. *Arum*, J. B. *Vulgare*, Ger. *Fulgare maculatum* & *non maculatum*, Park. *Arum* 2. & 3. *five maculatum Maculis candidis vel nigris*, & *vulgare non maculatum*, C. B.
 2. *Arum venis albis*, C. B. *Magnum rotundiore folio*, Park. *Majus Veronense*, Lob.
 3. *Arum Byzantinum*, Clus. J. B. C. B. Park. *Dracontium minus*, Ger. quoad Icon.
 4. *Arum montanum*, Alpin. Exot.
 5. *Arum maximum Aegyptiacum*, quod vulgo *Colocasia*, C. B. *Ar. Aegypt. rotunda* & *longa Radice*, vulgo *Colocasia dicta*, Park. *Colocasia*, Clus. J. B. *Aegyptiacum*, Ger.
- The Root of this, as well as the whole Plant, is acrimonious like the common *Arum*, but in a milder Degree, and is therefore used in Food, and for other Purposes. In *Egypt*, *Syria*, and other *Eastern* Countries, it is eaten as commonly as Turneps in *Germany*; and is very much coveted by the *Turkish* and *African* Slaves at *Naples*. *Bontius* writes, that it is of a venomous Nature, and requires three Days Maceration in Water, to render it eatable.
6. *Dracunculus aquaticus*, Ger. J. B. *Nofler aquaticus*, Park. *Palustris five radice arundinacea Plinii*, C. B.
 7. *Arum orientale*, *Aridabar dictum Zanou*, Hist. Bot. Cap. 12.
 8. *Arum Indicum*, Rumphal. *Dictum Zanou*, Hist. Bot. Cap. 92.
 9. *Arifarum latifolium*, Park. Ger. *Latifolium quibusdam*, J. B. *Latifolium alterum*, C. B. *Item latifolium majus ejusdem*.
- THE BROAD-LEAVED FRIERS-COWL.
10. *Arifarum angustifolium*, J. B. Ger. *Longifolium*, Park. *Angustifolium Dioscoridis forte*, C. B.

ARUNDO, the Reed. Of this *Dale* takes Notice of several Species. The first is the

Arundo, Offic. *Arundo vallisoria*, Ger. 32. Emac. 36. *Rui Hist. 2. 1275. Synop. 3. 401. Mer. Pin. 11. Arundo vulgaris palustris*, J. B. 2. 485. Hist. Oxon. 3. 218. *Arundo vulgaris vallisoria*, Merc. Bot. 1. 21. Phyt. Brit. 11. *Arundo vulgaris five phragmites Dioscoridis*, C. B. Pin. 17. Theat. 269. Tourn. Inst. 526. Elem. Bot. 418. Boerh. Ind. A. 2. 161. Dill. Cat. Giss. 175. Rupp. Flor. Jen. 155. Buxb. 27. *Harundo*

Harundo vulgaris *sive vallatoria*, Park. Theat. 1208. *Arundo*, *Harundo*, *Calamus*, Chab. 193. COMMON REED. Dale.

The Reed has thick, knotty, join'd Roots, which spread and increase much, running obliquely in the Earth: The Stalks grow to be above the Height of a Man, hollow, and with several Joints; at each of which grow long narrow Grass-like Leaves, rough and hard; and on their Tops a large husky Spike or Panicle, of a brownish-red Colour, full of a soft, downy Substance, hanging down the Head, without any visible Seed. The Stalks die away every Winter. The Reed grows by River-fides, and in Marshes.

ARUNDO DONAX, Offic. Park. Theat. 1208. *Arundo Cypria*, Ger. 32. Emac. 36. *Arundo sativa*, *sen Donax Dioscoridis*, Raii Hist. 2. 1275. C. B. Pin. 17. Tourn. Inst. 526. Elem. Bot. 419. Hist. Oxon. 3. 219. Boerh. Ind. A. 2. 162. C. B. Theat. 271. *Arundo maxima* & *hortensis*, J. B. 2. 485. Chab. 193. THE GREAT REED. Dale.

The Medicinal Virtues of these are said to be alike, which, according to *Bartholomæus Zorn*, are as follows:

Its Root attracts any Matter lodg'd in Wounds, if it is reduced to Powder, with Wine, and apply'd to the Wound; or if it is taken fresh, and reduced to Powder, with an Onion; or if the Powder of it is mix'd with Honey, it produces the same Effect, *Oribas. de Morb. Cur. L. 3. C. 32*. It also removes the Pains arising from Dislocations of the Limbs, and carries off Pains in the Hips. When bruised, and apply'd to any Part that aches, it is of wonderful Service, *Hier. Mercurial. Med. Pract. L. 4. C. 2*. If it is boil'd in any Lixivium, and the Head frequently wash'd therewith, it causes the Hair to grow; and cures scald Heads. *Julius Cæsar Claudinus, Ep. Vincenzo Tanar. fol. 88*. says, that the Root of the *Arundo* produced the same Effect in Rheumatisms and Catarrhs, with the *Peruvian Bark*. It is also good for those who labour under Consumptions. *Aetius* says, it is of a drying and warming Nature, and is therefore of Service to dropical Patients, *Serm. 10. c. 32*. See also *Ephem. N. C. Dec. 3. An. 3. Obs. 159*. It brings Apostems to Suppuration, *Lev. Lemn. de Herb. Biblic. c. 27*. The green Leaves, cut and apply'd, carry off the Wild-fire and *Erysipelas*. Poor People boil the Flowers in Water, or in Beer, which they mix with Honey, and drink, after having filtrated it, in order to cure Coughs, Oppressions of the Breast, and Consumptions. The Antients made Flutes, and other musical Instruments, of the *Arundo*.

ARUNDO SCRIPTORIA, Offic. Ger. 34. Emac. 37. J. B. 2. 487. Raii Hist. 2. 1276. Hist. Oxon. 3. 219. *Arundo scriptoria atro-rubens*, C. B. Pin. 17. Theat. 273. Tourn. Inst. 526. *Harundo minor sive Elegia*, Park. Theat. 1211. WRITING REED. Dale.

I do not find any Medicinal Virtues attributed to it.

ARUNDO TABAXIFERA, Offic. *Arundo Mambu*, Pison. Mant. Arom. 186. Raii Hist. 2. 1315. *Arundo Indica maxima arborea cortice spinoso Hermannii*, Syen. in not. Hort. Mal. C. Comm. Flo. Mal. 36. *Arundo arbor Tabaxifera*, C. B. Theat. 285. *Arundo arbor in qua humor lacteus gignitur, qui Tabaxir Avicennæ & Arabibus dicitur*, C. B. Pin. 18. Hist. Oxon. 3. 219. *Arundo arborea Mambu vel Bambu dicta*, Pluk. Almag. 53. *Canna ingens Mambu vel Bambu dicta*, Park. Theat. 1630. *Tabaxir sive Mambu arbor*, J. B. 1. 222. *Mambu arbor, Tabaxir Garcias & Acosta*, Chab. 67. *Bambu & Bambæ*, Nienhou. Leg. 91. Ily, Hort. Mal. 1. 25. Tab. 16. THE BAMBU CANE. Dale.

Piso writes, that the young Bambou-canes are full of a light, spongy, and liquid medullary Substance, (not so much stuffed as the common Sugar-canes) which the common sort of People greedily suck, on account of its grateful Taste. The young Shoots, which are very succulent and savoury, are much valued in *India*, by Strangers as well as the Natives, as being the Base of that famous Composition call'd *ACTIAR*, which is imported into *Europe*, and accounted a Delicacy among those of nice Palates: And I myself, says he, have more than once tasted it with Pleasure. But when these Canes are grown tall and old, the contain'd Liquor is alter'd in Substance, Colour, Savour, and Efficacy; and by degrees is protruded forth, and coagulated, near the Joint, by the Heat of the Sun, and harden'd like a white Pumice-stone: Soon after it loses its native Sweetness, acquiring a peculiar Savour, much like that of burnt Ivory, with a little Astringency, and is call'd by the Natives SUGAR MAMBU (the *Tabaxir* of *Garcias* and *Acosta*); which the lighter, whiter, and smoother it is, the greater is the Value set upon it; and the more uneven its Surface, and the more of an Ash-colour, the worse it is accounted.

The *Tabaxir* is very fit for Medicinal Purposes, eagerly sought after by the *Persians* and *Arabians*, and purchased at its Weight in Gold or Silver. The *Indians* use it for Wounds of the *Testes* and *Penis*. It is also said to be efficacious in Choleric Affections, and the Dysentery. *Garcias* writes, that it is proper to be used in burning Heats, internal and external, and in bilious Fevers and Dysenteries; but especially in bilious Fluxions, the Strangury, and bloody Urine. The Decoction of

VOL. I.

the Leaves and Bark, being drank, purges Wounds of Blood retain'd in them; and is proper for Women in Childbed, to cleanse the Uterus after the Birth. These Canes, cut off and burnt in the Fire, yield a most fertile kind of Ashes; in burning they make loud Cracks with as great a Noise as the Explosion of an hundred Guns; for the Air, which is stopp'd in by means of the Joints, being rarefy'd, and wanting more Space, bursts its Inclosure on all Sides, and makes its Way out by Violence. They grow in the Sand of the Sea-shores. *Raii Hist. Plant.*

The *Gramen Arundinaceum*, Reed Grass, enumerated amongst the *Reeds* by *Dale*, agrees in Virtues with the common Reed. See CALAMUS.

ARYSTER, ἀρύστηρ, from ἀρύω, to draw out. A sort of Vessel mentioned by *Hippocrates*, *Lib. περὶ γυναικῶν*; to which he opposes πύργος μέγας, a large Vessel. *Foerfius*.

ARYTÆNOIDES, ἀρυτæνοειδής, from ἀρύταινα, a Funnel, and εἶδος, Shape. An Epithet of two Cartilages, which, together with others, constitute the Head of the Larynx. It is also apply'd to some Muscles of the Larynx. *Castellus. Blancard.* See LARYNX.

ARYTHMUS, or ARRHYTHMUS, ἀρρυθμὸς ἢ ἀρρυθμιος (from α Negative, and ρυθμός, properly signifying a Modulation or Modification of Time and Sound in Music, but used to express Order and Harmony in other Things). An Epithet apply'd by *Galen* to a Pulse not modulated according to Nature. It is opposed, he says, not to *Eurythmus* (εὐρυθμὸς) "modulated," for every Pulse is modulated after some manner or other, but to *Eurythmus*, (εὐρυθμὸς) "justly modulated;" so that *Eurythmus* is a common Genus to *Arythmus* and *Eurythmus*. A *Pulsus Eurythmus* is but one, and indivisible; but a *Pulsus Arythmus* is of three Kinds, as *Pararythmus*, *Heterorythmus*, and *Ecrythmus*. To shew what these are by an Example: Every Age has its natural Pulse, which, as long as it keeps its due Rhythmus, or Modulation of Time and Force, is call'd *Eurythmus*; but if it any way transgresses, it is a *Pulsus Arythmus*. If it transgresses into a Modulation proper to the next Age, it is *Pararythmus*; if it changes to a Pulse proper for any other Age, it is call'd *Heterorythmus*; but if it passes into a Modulation proper to no Age at all, it is then a *Pulsus Ecrythmus*. The same Judgment is to be form'd of Natures, Seasons of the Year, Places, and all other Things; for all have their determinate Rhythmus, and, if this be corrupted, they pass into one or other of the three Classes of the *Arythmi* before-mention'd. *Galen. de Diff. Puls. Lib. 1. Cap. 9.*

AS, ASSARIUM, ἀσάριον, μνᾶ, sometimes means a particular Weight, in which Sense the *Roman As* is the same as the *Libra*, or *Roman Pound*, consisting of twelve Ounces. Sometimes it signifies a *Roman Coin*, which was of different Matter and Weight, according to the different Ages of the Commonwealth; therefore *Varro* derives the Word *As* from *Asis*, because this Piece of Money was first made of Copper of a Pound Weight; and *As*, *Asis*, *Pondo*, and *Mina*, among ancient Authors, generally pass for the same. It is also used to signify an Integer, divisible into twelve Parts, whence comes our Word *Dec*, or *Unit*; and, for this Reason, some will have *As* deriv'd from the *Doric* ἀς for εἷς, one. In *Galen*, *de Ponderibus & Mensuris*, the ἀσάριον is the Weight of two Drams.

ASA DULCIS, the same as BENZOINUM, which see.

ASA FOETIDA. See SILPHIUM.

ASABON, Soap. *Rulandus. Johnson.*

ASÆSTUS, ἀσάστῳ. See CALCARIUS LAPIS, and CALX.

ASAGEN, Dragon's-blood. *Rulandus. Johnson.*

ASAGI, Vitriol, or Atramentum Rubrum, calcin'd Vitriol. *Rulandus. Johnson.*

ASAMAR, ASAGAR, ASINGAR, Verdigrise. *Johnson.*

ASAMAZ, Vitriol. *Rulandus. Johnson.*

ASAPEOS, ἀσάπιος, in *Hippocrates*, *Lib. de Rat. Fict. in Morb. acut.* signifies the same, according to *Galen*, ἀσάπιος, that is, without Concoction. *Foerfius*.

ASAPES, ἀσάπης, unconcocted; otherwise express'd by *Aseptus*, ἀσπιδος, (from α Negative, and σπρω, to corrupt, putrefy) unputrefy'd, according to the Notion of the Antients, confounding Concoction with Putrefaction. *Castellus*.

ASAPHATUM is a sort of *Serpigo*, *Impetigo*, or intercutaneous Itch, generated in the Pores like Worms: If the Skin be press'd, they come forth like oblong Threads, with a black Head. *Johnson*.

ASAPHEIS, ἀσάφης, (from α Negative, and σάφης, clear, open) in *Hippocrates*, in *Prorb. & Coac.* are such Patients as do not utter their Words in a clear manner. This Defect is occasion'd, as *Galen* says, *Comm. 2. in Prorb.* ἢ διὰ τὴν τῶν διαλεκτικῶν ὀργάνων βλάβην, ἢ ἐκ τῆς τῶν νεύρων κακώσεως ἢ γὰρ, ἢ διὰ τὴν διαρροίαν αὐτοῦ, "either by some Hurt, which the Organs of Speech have contracted from a Disorder of the Nerves, or else by a Delirium." In the same Sense we are to understand ἀσάφης γλώσσα, *Lib. 7. Epid.* of a muffled beliterating Tongue, that has no plain Utterance; and ἀσάφεια, in the same Book, means such a Confusedness of Voice as proceeds from an Indisposition of the Vocal Organs. *Asaptes παρ' ἡμετέρας, in Lib.*

8 L

Lib.

Lib. 1. Prorrhēt. means a dubious kind of Delirium, which can hardly be discover'd by the Attendants, or even by the Physician. The Patient lies at Rest, like one in a Slumber, sometimes with his Eyes shut, as if betaking himself to Sleep, sometimes with them open, and his Hands thrown about, and employ'd in searching and groping here-and-there: Now, because he lies quiet, and does not cry out, nor start up in his Bed, like other phrenetic Patients, his Phrensy or Delirium is said to be *ασαρος*, "obscure or dubious;" and, being join'd with a Coma in the Beginning, is to be accounted very dangerous. This is the Substance of *Galen's* Comment on the Place.

ASARABACCA, the same as ASARUM, which see.

ASARCON, *ασακων*, from *a* Negative, and *σαρξ*, Flesh, strictly signifies void of all Flesh; but is comparatively applied by *Aristot.* to the Head, in respect of the Middle and Lower Belly, compared with which it has but little Flesh.

ASARINA, a Species of ASARUM, which see.

ASARITES, *ασαριτης*, from *ασαρον*, *Asarum*, *εινος*, Wine, being understood, is Wine of *Asarum*, which is made by putting six Pints of Must to three Ounces of *Asarum*. This Wine is diuretic, and good for those who are afflicted with the Dropsy or Yellow Jaundice, a disordered Liver, or the Sciatica. *Dioscorides*, *Lib. 5. Cap. 68.*

ASARUM, *Offic. Ger. 688. Emac. 836. C. B. 197. J. B. 3. 548. Chab. 510. Raii Hist. 1. 207. Tourn. Inst. 501. Boerh. Ind. A. 2. 95. Dill. Cat. 36. Buxb. 28. Asarum vulgare*, *Park. 266. Asarum vulgare rotundifolium*, *Hist. Oxon. 3. 511. Nardus rustica*, *Hoff. Flo. Altorff. ASSARABACCA.*

ASARUM is by some called *Wild Nard*; it has Leaves like Ivy, but much thicker, and rounder. The Flower grows in the Middle of the Leaves near the Root, and is of a blue Colour, resembling that of Henbane, and inclosing a Seed like a Grape-stone. The Roots are numerous, jointed, slender, running obliquely, resembling those of Dogs-grass, but much slenderer, of a fragrant Smell, and taste very hot and biting upon the Tongue.

The Roots are heating, diuretic, and emetic, and are good in a Dropsy, or inveterate Sciatica; they also provoke the Menstrues; six Drams thereof, taken in Hydromel, purge like White Hellebore. They are also an Ingredient in Ointments.

ASARUM grows plentifully on shady Hills, and in the Countries of *Pontus*, *Phrygia*, *Illyricum*, and the Territories of the *Vestines* in *Italy*. *Dioscorides*, *Lib. 1. Cap. 9.*

It is called *Asaren*, as *Pliny* says, because it is not worn in Garlands. It has the Virtues of Nard. They dig it when it shoots forth Leaves, and dry it; it very soon grows mouldy.

The Root of *Asarabacca* consists of a great Number of slender Strings, of an aromatic Scent when dry. The Leaves are smooth, and of a Sea-green Colour; of a thick firm Substance, of a roundish Shape, somewhat hollowed in, next the Foot-stalk, resembling a Kidney; among these arise the Flowers on short Stalks, in form of Cups, or brownish green Husks, divided at Top into three Parts, and containing Seed like Grape-kernels. It is planted with us in Gardens, and flowers in *June*. But the dried Roots are brought from *Leghorn*.

Asarum, according to *Pliny*, [*Lib. 12. Cap. 13. & Lib. 21. Cap. 6.*] takes its Name from the Greek Word *ασαρον*, to adorn, and the privative Particle *a*, without, because it was not used by the Antients in adorning their Crowns and Garlands. It is also called the *Nardus Montana*, *Sanguis Martis Mogorum*, and *Nardus Sylvestris*, and *Rustica*, from its Smell and Virtues, resembling those of the Nard. The greatest Virtue is lodged in the Root, which is aromatic, very strong, and burns the Tongue like Ginger. But, according to *Georgius a Turre*, [*De Hist. Plant. Lib. 2. Cap. 23.*] it scarce retains its original Nature and Qualities above a Year. *Helmont* [*De Mag. Lib. Cur. p. m. 479.*] affirms, that it vomits, and sometimes purges very strongly. *Dioscorides* says, that an Infusion of six Drams of its Root purges like Hellebore. It nevertheless loses a great deal of its emetic Quality by being boiled in Water. *Helmont*, in *Pharm. & Dispens. Modern. Sect. 46. Heurn. Meth. ad Praxin, Lib. 2. Mich. Etmuller. Oper. Med. Tom. 2. p. m. 15.* The English affirm from their Experience, that the Powder of *Asarum*, boiled in Wine, purges; and that, when boiled in Water, it excites a Discharge of Urine. It removes Obstructions of the Liver and Spleen, purges the Body of all malignant Humours, strongly promotes the Menstrues, and expels the After-birth, and the Fœtus, when dead. *M. Ruland. in Th. J. Med. a C. Reyger. Ed. p. 77.* says, that a Decoction of *Asarum* Root, infallibly promotes the Monthly Discharges, and expels the Secundines, and dead Fœtus. It dissolves the thick and viscid Matter lodged in the Lungs. See *Joh. Freytag. Amor. Med. Lib. 2. Cap. 31. Gu. Rossic. Lib. de Purg. Veget. Sect. 1. Art. 4. Cap. 3.* It is of great Service in the Jaundice, Dropsies, Pains of the Limbs, Gout and Fevers; and is the great Panacea of such as are afflicted with Quartan Agues. See *Simon Pauli in Quadr. Bot. Class. 2. Matth. in Diosc. Lib. 3. Cap. 42. Alex. Pedemont. Secret. Lib. 1. J. Steph. Ströbelberg. Rem. Singul. pro Cur. Febr. intr. p. 28. & 29. Rosin. Lantil.*

Miscell. Med. Pr. p. 13. p. 197. G. H. Velsch. Chil. 1. Exot. Cur. & Obs. 664. It is principally used by the Country People in what they call a *Fever-cake*, in order to remove Fevers. *Petr. Bayrus, Lib. 12. Pr. Cap. 6.* says it is of wonderful Efficacy in the Jaundice. *Jo. Soph. Kozak, Tr. de Sale, Sect. 14. Cap. 6.* affirms, that by its means he has restored many, who laboured under the Jaundice, to perfect Health. *G. Rondelet, Meth. Cur. Morb. Lib. 3. Cap. 82.* affirms, that in many Instances, he found a Decoction of it to cure Sciatic Pains of long Standing. See also *Joh. Ruel. de Natur. Stirp. Lib. 2. Cap. 8.* In the City of *Dresden* there was one *Lotichius*, Physician to the Court, who mixed the Root of this Herb almost with every Medicine he prescribed. See *Joh. Michael Net. in Joh. Schrod. Pharm. Med. Chym. p. 608. & 624. Frid. Hoffmann. Clav. Pharm. Schrod. Lib. 4. Sect. 4.* Women with Child ought carefully to abstain from this Root, because it is very hurtful to the Fœtus; though *Fernelius, Lib. 5. M. M. C. 13.* informs us, that it may be given to Women in that Condition without any Danger. Its Leaves reduced to a Powder, and applied to the Pulse, occasion Sleep, and cure Fevers. *B. Montagnan Confil. 191.* affirms, that a Plaister made of the Leaves of *Asarum*, and applied to the Region of the Kidneys, wonderfully cleanses the renal and urinary Ducts. If the Head is washed with any Lixivium, in which its Root and Leaves have been boiled, it fortifies the Brain and Memory, tinges the Hair black, and prevents its falling off. Its Root reduced to a Powder, and applied to old and foul Wounds, cleanses and cures them. If its Root is cut, and steeped in Rose-water, the Liquor removes Stains and Blotches in the Face. *Forst. Lib. 31. Obs. 3. in Schol. & Lib. 4. Obs. Chir. 11.* When Hares, and other wild Beasts are indisposed, they eat this Herb, and find a Cure in it. The Antients, observing this, did for that very Reason mix this Herb with Salt, and give it to their Sheep, their Oxen, and Cows, in order to prevent a Putrefaction of their Flesh. When Horses will not eat their Food, some People mix the Root of this Herb with Oats, upon which the Horses begin to eat, and are rendered sprightly. Some Women put its Leaves into new-drawn Milk, imagining that by their means it will produce more Cream than it would otherwise have done. This Herb was also by the Antients accounted good against Witchcraft.

Joh. Fernelius, Lib. 7. Meth. Med. has a Composition, which he calls *Diasarum*; and which he at first prepared with a View to vomit. This Composition, says *Hor. Aug. [Epiſt. Med. Tom. 1. p. 297.]* when exhibited at certain Intervals, proves a safe and agreeable Vomit to Persons of all Ages and Sexes, and even to Women big with Child; and with this very View it is prepared in many foreign Shops, where we also find the Extract of *Asarum*, called also the *Coagulum Asari*, which is excellent in Disorders proceeding from Melancholy, cures the Jaundice and Falling Sickness, excites a Discharge of Urine, promotes the Monthly Evacuations, kills Worms, and cures Fevers, especially those of the Quartan Kind. *Hartmann. Prax. Chym. de Vomitor. Sennert. Instit. Lib. 5. p. 3. Sect. 3. Cap. 9. Collectan. Chymic. Leydens. Cap. 48. Joh. Helf. Jungken. Corpus Pharm. Chym. Med. Sect. 3. Cap. 12.* Many from its Leaves and Root distil a Water, which they prescribe for Oppressions of the Breast, the Jaundice, the Dropsy, Tertian and Quartan Agues. It must also be good for Disorders of the Eyes. *Joh. Camer. Hort. Med. p. 22.* A Conserve made of its Leaves fortifies the Memory and Hearing. *Croll. Tr. de Sign. intr. rer. Marc. Aut. Zimar. Antr. Magico-Med. Part. 2. p. 113. H. Petrus Nofol. Harm. Tom. 1. Differt. 11. Sect. 52.*

The Juice of *Asarum* has of late obtained great Reputation as a Vomit in Maniacal Cases. The *Pharmacopœia Pauperum* gives the following Form:

AN EMETIC DRAUGHT.

Take of the Juice of *Asarabacca*, six Drams, or an Ounce; of Oxymel of Squills, half an Ounce; Carduus-water, two Ounces; mix into a Draught.

This is a very strong Emetic, and is much used at *Bedlam*, amongst the Maniacs; for it will operate when neither Crocus, nor any of the common Mercurial Emetics, will move them. And it has been confirmed by all Experience, that such Patients are much more difficult to be wrought upon than any others, either by Cathartics or Emetics; inasmuch that they will bear enough at a Dose for six or ten ordinary Persons; their Fibres, and all the Parts of the Brain, most administering to Sensation, being extremely clogged with viscid Humours, which this Medicine is very powerful in draining off; and upon the same Account likewise it is of good Service as a Sternutatory; for it greatly drains the Head by the powerful Twitches and Vellications it gives to the Fibres of the Nose, and Parts adjacent.

Asarum Virginianum, *Sorſentaria nigra*, *Offic. Asarum Virginianum folio cordato Cyclaminis more maculato*, *Hist. Oxon. 3. 511. Asarum Virginianum Pylechchia foliis subrotundis Cyclaminis*

clamini more maculatis, Pluk. Almag. 53. Phytog. 78. Raii Hist. 3. 129. *Asarum Cyclamini folio Virginianum*, Banif. MSS. Cat. *Serpentaria major Officinarum*, Bobart. BLACK SNAKEWEED.

This is the *Asarum* of Virginia, with Leaves of *Pistolochia*, spotted like Sow-bread, *Plukenet's Phytographia*, Tab. 78. Fig. and the Roots of it are brought over among the true *Serpentaria Virginiana*, and are used promiscuously with them, being accounted of the same Diaphoretic and Alexipharmic Nature. *Miller's Bot. Off.*

ASBESTUS, ἀσβεστος, from α Negative, and σβέννυμι, to extinguish; unextinguished, as κοία ασβεστος, Quick-lime. But this Word is often put substantively, for Quick-lime, without the Addition of τιτανος, Lime. For its other Signification, see AMIANTUS.

ASBO, ασβο, the Name of an unknown Animal, whose Fat, among others, is prescribed as an Ingredient in a Plaster for the Pleurisy. *Myrsus de Emplastris*, Cap. 79.

ASCALABOTES, ἀσκαλαβώτης, and καλώτης, a kind of Lizard, mentioned by Galen, 11. de Simp. Fac. and Lib. de Theriac. ad Pis. Cap. 9. For a Description of it, see ALDROVANDUS.

ASCALONIA, ASCALONITIS, a Species of CΕΡΑ, Onion, which see.

ASCARDAMYCTES, ἀσκαρδαμύκτης, from α Negative, and σκαρδαμύγω, to wink; in Lib. 2. de Epidem. Sect. 6. is one who keeps his Eyes long fixed and immoveable without Twinkling.

ASCARIDES, ἀσκαρίδες, (from ἀσκαρίζω, the same as σκαρίζω, to leap, palpitate, move, as ἀσaris, and σaris, ἀσachus, and σachus, in Hippocrates, are the same thing) are expounded by Galen, in his Exegesis, to be ελμινθες ισχυαί η̄ μικραι εν τῷ ἀπενθυσμένῳ εἰς τὴν γενίωμαται, "small slender Worms bred in the Intestinum Rectum;" and Paulus, Lib. 4. Cap. 58. αἱ ἀσκαρίδες εἰδὸς εἰσιν ἐλμίνθων σκώληξιν παρὰ πλῆθος, συνιστάμενοι περὶ τὰ ἔσχατα τῆ ἀπενθυσμένη, καὶ τὰ πρῶτα τῆ σφιγκτικῆς, ἐπιδέξασθαι τῶν τόπων τούτων κνησμὸν ἰσχυρὸν. "The Ascarides are a kind of Worms much like the Scolex, which lodge about the Extremity of the Intestinum Rectum, and Beginning of the Sphincter, and excite a vehement Itching in those Parts;" or, according to Aëtarius, Meth. Med. Lib. 1. Cap. 21. αἱ εἰς ἐρεθίζουσαι καὶ γαργαλίζουσαι τὸν κάμνοντα, "molesting the Patient with a continual Irritation and Titillation."

The Signs of these Worms, called *Ascarides*, are a continual Itching in the Fundament, which sometimes causes fainting Fits and Swoonings; this Itching proceeds from the Motion of these Worms, and the quick Sense of the Part where they lie; for we must not believe with *Mercurialis*, and some others, that the great Guts have only a dull sort of Feeling, seeing that the Torments of the Colic, which are felt in the Colon, and Pains in the Intestinum Rectum, caused by the Wind inclosed therein, are a good Proof to the contrary.

REMEDIES against the ASCARIDES.

The *Ascarides* are a Worm difficult to be expell'd, and that for several Reasons: The first is, because those Creatures are remote from the Stomach, so that Remedies lose their Virtue before they can come where the Worms are. The second is, because the *Ascarides* are wrapt up in viscous Humours, which hinder the Operation of Medicines. The third is, because these Worms ascend sometimes into the Cæcum. Now that Gut being like the Bottom of a Sack, the *Ascarides* keep themselves, as it were, intrenched in that Place. However it be, 'tis better to attack them below; and for that Reason there is no better Remedy, than to put up into the Fundament a Suppository of Cotton dipped into Ox's Gall, or in Aloes dissolved. One thing which I prescribed with Success to several Patients, was, to put up into the Fundament a little Piece of Lard tied to a String, if left there for some time; and after that, if drawn back, it will be full of Worms. Instead of Lard, you may use old Flesh salted. Clysters of the Decoction of Gentian are wonderful against the *Ascarides*. You may add to the Gentian, Birthwort, Succory, Tansey, Arse-smart, Orach, and make a Decoction of it in Water and White-wine: When it is done, you may add a little of the Confection of Hiera.

For Children you may use the following Clyster:

Take Mallows and Violet-leaves, of each a Handful; Colewort-leaves, one or two Handfuls; Coriander and Fenel- Seeds, of each two Drams; Flowers of Chamomile, and the Lesser Centaury, of each a little Handful: Make a Decoction of the Whole in Milk, and dissolve in the strained Liquor an Ounce of Honey, and two Drams of the Confection of Hiera.

Hippocrates advises, for the expelling of the *Ascarides*, to take Agnus-castus-seed, to bruise it well with a little Ox-gall, and then to mix the Whole with a little Oil of Cedar, and

make a Suppository of it with a little greasy Wool. Andry. See LUMBRICI and VERMES.

ASCELES, ἀσκέλης, from α Neg. and σκέλος, a Leg. Without Legs. *Galen de Hippoc. & Plat. Decr. Lib. 4. Cap. 4.*

ASCENDENTIA, Ascending; spoken of the Signs or Constellations of the Firmament of Heaven, and especially of the Sidereal Spirits. *Castellus from Dornæus in Diel. Par.*

ASCENSUS MORBI, the Ascent of a Disease, is the same as the *Augmentum* or Increase of the same. See AUGMENTUM. *Ascensus* also, or *Ascensio*, signifies a manner of chymical Sublimation and Distillation, oppos'd to *Descensus*. See AQUA.

ASCESIS, ἀσκησις, from ἀσκέω, to exercise. The same as EXERCITATIO, which see.

ASCETES, ασκητής. The same as *Athleta*, or *Athletes*, a Wrestler. Thus ἀσκητής, in *Erotian* on Hippocrates, is expounded by ἀθλητής; for *Afctæa*, he says, are called by the *Attics*, *Athletæ*.

ASCHEMON, ἀσχέμων, from α Neg. and σχῆμα, a Form, or Figure; deformed; ἀσχημονέειν σκελεθ, a more deformed Leg, *Ilipp. Lib. de Artic.*

ASCHIA, *Thymallus*, Offic. *Thymallus*, Schrod. 5. 333. Salv. de Aquat. 81. Jonf. de Pisc. 81. Aldrov. de Pisc. 593. Charlt. de Pisc. 36. Raii Ichth. 187. Fj. id. Synop. Pisc. 62. Bellon. de Aquat. 182. *Thymallus*, seu *Thymus*, Gefn. de Aquat. 978. *Thymus*, Rondel. de Pisc. 2. 187. THE GRAYLING, or UMBER.

This Fish resides in rapid, shallow, and stony Streams, and is esteem'd excellent Food. The Part us'd in Medicine is the Fat, which is said to take away Specks and Pearls from the Eye: Melted in the Sun, and mix'd with Honey, it takes away Freckles, and Marks left by the Small-pox. Dale.

ASCIA, σκεπαρῶν ἢ σκεταρῶν, properly an Ax, or Hatchet, but, by a Metaphor, taken from the Figure, us'd to signify a sort of simple Bandage, which is described by Galen, Com. 2. in Lib. de Art. The *Ascia* is a sort of Bandage, that declines a little from the Transverse. And, on *Hippoc. εν τῷ κατ' ἰν.* he tells us, that Hippocrates calls the Bandage which declines but a little, *Ascia*, and what considerably declines, *Sime*. Now an *Ascia*, he says, is a Carpenter's Tool, which towards its Extremity, by which it cuts the Wood, is gently incurvated, and shelves away like a Rock. But *Erotian* seems to give us the clearest Idea of it, from *Aesclepiades*, εἰς τὸ ἰν. as follows; ἐστὶ γὰρ ὁ σκεπαρῶν, ὅταν ὁ ἐπισεσμὸς ἐπιβάλλων ἀντὶς εαυτοῦ, καὶ χιλιζόμενος, κλάσιν τινὰ ποιῇ καὶ γωνίαν, διὸν ἔταν ὀρθόλοζον ἐπιδέξῃ. "The *Ascia* is, when the Fillet, after one Revolution, runs into the Figure of the Letter χ, making a Break and Angle, as in the Rectoblique Bandage." This agrees with that of Hippocrates de Fract. ἐπιδέσιων γὰρ ἐστὶ ἄντη ποικιλωτάτη, καὶ πλείους μὲν σκεταρῶν ἔχουσα. "This Bandage has the greatest Variety, and a Multitude of *Ascia*;" and in the same Sense is σκεπαρῶνδον us'd. Lib. de Fract.

ASCITES, ἀσκίτις, from ἀσκάς, a Bottle, because it distends the Belly in Form of a Bottle. A Species of Dropsy. See HYDROPS.

ASCITICUS, ἀσκητικός, one who labours under an *Ascites*. *Blancard*.

ASCLEPIADÆ.

The Descendants of *Aesculapius*, called *Asclepiades*, have been said to preserve Medicine in their Family without any Interruption; but of this we should have a more distinct and accurate Knowledge, if we had the Writings of *Erastosthenes*, *Pherecydes*, *Apollodorus*, *Arinus* of Tarsus, and *Polyantus* of Cyrene, who took care to write the History of these Descendants of *Aesculapius*; but though the Works of these Authors are lost, yet we have the Names, at least, of some of the *Asclepiades* preserved, as appears from the Catalogue of the Predecessors of Hippocrates, who called himself the Eighteenth Descendant of *Aesculapius*. Now the Genealogy of Hippocrates is still entire, and stands thus:

That Hippocrates, whose Writings are handed down to us, was the Son of *Heraclides*, who was the Son of another Hippocrates, the Son of *Gnosidicus*, the Son of *Nebrius*, the Son of *Softratus* the Eld. the Son of *Theodore* the Second, the Son of *Cleomytides* the Eld. the Son of *Cryfamus* the Eld. the Son of *Softratus* the Eld. the Son of *Theodore* the First, the Son of *Cryfamus* the First, the Son of *Cleomytides* the First, the Son of *Dardanus*, the Son of *Softratus* the First, the Son of *Hippobolus*, the Son of *Podalirius*, who was the Son of *Aesculapius*. *Stephanus Byzantinus* ascribes two more Sons to *Gnosidicus*, besides him already mentioned; one of whom was called *Amnus*, and the other *Podalirius*. *Nebrius*, the Father of *Gnosidicus*, had also another Son, whose Name was *Clyfius*.

This Genealogy may possibly be thought fabulous; but, granting that there was some Error, or something of a fictitious Nature, in this Succession of the *Asclepiades*, 'tis, at least, certain, that several Branches of the *Aesculapian* Family were known, besides that of Hippocrates, before his Time; and that the particular Branch of it, from which that Physician sprung, was distinguished by the Name of the *Asclepiades Nebriæ*, or the

the Descendants of *Nebrus*, who had become particularly famous in Physic, and of whose Skill the Priests of *Apollo* had, in one of her Responses, given a very great Character, as *Stephanus Byzantinus* observes.

There were still more Branches of the *Asclepiadae* spread up and down in different Parts, and they had even established three famous Schools, one at *Rhodes*, which failed first by the Extinction of that Branch of the Successors of *Aesculapius*; and this probably happened, long before the Days of *Hippocrates*, since he makes no Mention of it, as he does of that of *Cnidos*, which was the Third, and that of *Cos*, which was the Second. These two last flourished at the same Time with the School of *Italy*, of which were *Pythagoras*, *Empedocles*, and other Philosophers, who cultivated Physic, though at the same time the Greek Schools were much more antient. As these were the only three Schools which made any Noise, so they had a mutual Emulation, and were for ever contending for the greatest Improvement in Physic. *Galen*, however, gives the Preference to that at *Cos*, as having produced the greatest Number of famous Disciples, among whom was *Hippocrates*. That of *Cnidos* was ranked in the second Place, and that of *Italy* in the third.

Herodotus lib. 1. also speaks of a School of Physicians at *Cyrene*, where *Aesculapius* had a Temple, in which the Service was different from that practis'd in *Greece*; which may lay a Foundation for suspecting, that in that Nation there might have been *Asclepiadae*, of a different Sort from the others.

The same Historian in the above-quoted Book also mentions a Medicinal School at *Crotone*, the native Country of *Democedes* the famous Physician, who was contemporary with *Pythagoras*. This Physician, according to *Herodotus*, being banish'd by the Cruelty of his Father *Calliphen*, arriv'd first at *Agina*, and afterwards at *Athens*, where he was had in great Esteem. From thence he went to *Samos*, where he had an Opportunity of attending *Polycrates* King of that Island, and the good Fortune to cure him of a very terrible Disorder, for which he receiv'd two Talents of Gold. Some time after, being taken Prisoner by the *Persians*, he concealed his Profession, but was at last discover'd, and compell'd to employ his Skill for the Relief of *Darius*, who was rack'd with Pain in Consequence of a Dislocation of one of his *Ancles*. He had also for his Patient Queen *Atossa*, Wife to the same King, for a Cancer in her Breast. The Historian adds, that having been successful in both these Cures, *Democedes* receiv'd very rich Presents, and acquir'd so great a Share of the King's Favour, that he was invited to eat at his own Table. But finding an Opportunity of returning into *Greece*, on account of a Promise he had made to act in Quality of a Spy, he remained in it altogether, despising all the Honours they had paid him in *Persia*, and laughing at those who had given him a Commission to betray his native Country. He was afterwards marry'd to a Daughter of the famous *Alcibiades* his Countryman.

We know no other memorable Circumstances relating to the Physic of *Democedes*, or that of the other Physicians of *Crotone*: Neither have we any thing of Importance to say concerning the School of *Rhodes*. As for that of *Italy*, 'tis possible *Polycles* might belong to it, since he was Physician to *Phalaris* the Tyrant of *Agrigentum*, the Town of *Sicily*, in which that School was.

We may judge of the Method follow'd in the School of *Cnidos*, by some Hints of *Hippocrates* relating to that Affair. "Those, says he, [*De Ratione Victus in Acutis, Lib. 1.*] who have compiled the *Cnidian Sentences*, have very well described what Patients suffer under every Disease; how some Symptoms of their Disorders happen; and, in a word, all that any Person ignorant of Physic could write, after inquiring of Patients what their several Ailments were; but they have forgot most of what a Physician ought to know, without hearing the Report of the Patient."

The same Author besides observes, that the *Cnidians* us'd very few Medicines; for *Elaterium*, which is a Purgative extracted from the wild Cucumber, Milk, and Whey, made up almost the Whole of their *Materia Medica*. From what *Hippocrates* here says, we may gather, that these Physicians were content with giving an Enumeration, or exact Description, of the Symptoms attending Diseases, without giving themselves the Trouble to inquire into their Causes, or prognosticate their Events; we may also gather from what he says, that they only us'd a very small Number of Medicines, the Virtues of which they and their Predecessors had discover'd by Experience.

These two Observations are sufficient to convince us, that the *Cnidians* were little more than Empirics, or, at least, that they did not value themselves on the Accuracy and Justness of their Theories. The farthest they went in this Way, was sometimes to reason from Analogy, or a Comparison of Diseases and Remedies, as we may see by the Example *Galen* gives us of it in these Words: "The *Cnidians*, says he, attempted to cure Abscesses of the Lungs in this manner: As they had observed, that a Cough occasions a Discharge of any

"Matter in the Lungs, they pull'd the Tongues of those who labour'd under Abscesses of the Lungs, without their Lips, and endeavour'd to convey some Drops of Water into the *Aspera Arteria*, with a View to excite a violent Cough, which in their Opinion made them discharge all the Pus contain'd in their Breasts."

As for the Physicians of *Cos*, it may be also said of them, if the *Prænotiones Coacæ*, found among the Works of *Hippocrates*, are only a Collection of Observations made by these Physicians, as many of the Antients believed, that they were not great Reasoners; and we plainly perceive, that they were not at the Pains to account for their Prognostics. *Hippocrates* was of the Number of these Physicians, and we know of no more of them, except his Predecessors, whom we have already mentioned.

What we have said proves, that what *Pliny* and *Celsus* have advanced, is not absolutely true, when they said, that we had no Accounts of Physic during the Interval they have mention'd; and still less true, that Physic only began with Philosophy, as *Celsus* affirms; unless he means rational Physic, or that which is employ'd in investigating the hidden Causes of Diseases, and accounting for the Operations of Medicines. This sort of Physic had, indeed, little Existence in the World, before the Arts and Sciences came to be cultivated.

It may possibly be thought, that I forget one Circumstance, which not only does a great deal of Honour to the *Asclepiadae*, but intirely overthrows what *Celsus* and *Pliny* have advanced; and even what I myself affirmed, when I said that the *Asclepiadae* were little more than Empirics; and that is, that they were look'd upon as great Anatomists. *Galen*, 'tis true, was of this Opinion: "At the Time, says he, when Physic was confin'd to the Family of the *Asclepiadae*, the Fathers taught their Children Anatomy, and from their Infancy trained them up to the Dissection of Animals; so that this Branch of Knowledge passing from Father to Son, like a manual Tradition, as it were, it was to no Purpose to write down the Manner in which these Dissections were performed, since it was as impossible they should forget it, as that they should forget the Letters of the Alphabet, which they learned almost at the same Time."

There are still some other Passages of this Author, from which we perceive, that he believed, that the *Asclepiadae* were perfect Masters of Anatomy. But to his Authority we may oppose that of an antient Commentator upon *Plato*, who asserts that the Philosopher *Alcmaeon* was the first who dissected an Animal; which destroys what *Galen* affirms of the *Asclepiadae*, at least, of such of them as came before *Alcmaeon*, who are the Persons of whom we now speak; as for those who came after him, they were either contemporary with *Hippocrates*, or succeeded him. But though the Testimony of *Hippocrates*, in this Case, were not to be depended on, yet we may conclude from the small Progress they had in his Days made in Anatomy, that till then the Bodies of Animals had been very superficially inquired into; which is quite the Reverse of what *Galen* says, when he affirms, that *Anatomy was in its Perfection in the Days of the Asclepiadae*.

I would not by all this insinuate, that the *Asclepiadae* were entirely ignorant of the Parts of the human Body, since without such a Knowledge they could neither practise Physic in general, nor Surgery in particular; which, by the way, they understood better than any other Branch of the Business. But the Knowledge they had in Anatomy was in a great measure owing to what they observed in the killing of Beasts, and in their Sacrifices. They were also very industrious in improving themselves in Anatomy, if at any time they found in the Fields human Bones stript of their Flesh by wild Beasts, or wasted by Time; or when they found the Bodies of Travellers killed by Robbers, or those of Soldiers killed in Battle. It is also possible, that the *Asclepiadae* might have got acquainted with the Improvements of the *Egyptians*, who embalmed their Dead for Preservation. But their chief and principal Scene of Improvement was in the Practice of Surgery, where in the Cure of Wounds, Ulcers, Tumors, Fractures, and Dislocations, they had an Opportunity of discovering in the Living, what they wanted sufficient Opportunities of finding in the Dead. *Le Clerc*.

ASCLEPIADES.

Though the Descendants of *Aesculapius* were called the *Asclepiadae*, that is, the Children of *Asclepius*, which is the Greek Name of *Aesculapius*; yet there was a Physician of the Name of *Asclepiades*, who was not of that Family.

This Physician was in great Reputation at *Rome*, during the Life of *Antibrudates*, that is, towards the Middle of the Thirtieth Century, according to the Testimony of *Pliny*, from which I conclude, that this Author contradicts himself, when he says, in the same Chapter, that Physic was not known in *Rome*, till after *Pompey's* Victory over *Antibrudates*. *Archagathus*, a Greek Physician, came to *Rome* about an hundred Years before; where, on his first Appearance, he was well received; but his Profession was afterwards brought into Disgrace. Now

in all Probability, this *Asclepiades* was one of the first who re-established its Character and Reputation. This Physician [according to *Pliny*, *Lib. 26. Cap. 3.*] was a Native of *Prusa* in *Bithynia*, but happened at last to settle in *Rome*, in Imitation of a great many other *Greeks*, who had now begun to establish themselves in this Capital of the World, hoping there to acquire greater Riches than in their own Country. Upon his first Appearance in *Rome*, he taught Rhetoric; but not finding his Expectations answered by that Profession, he resolved to try whether that of Physician would not be more fortunate to him; and though, according to *Pliny*, he had at that time no Knowledge of the Business, yet he imagined, that by the Brightness of his Genius, he should soon surmount the Disadvantages arising from his not having been regularly bred to Medicine.

The Method this Physician used to establish his Character was, to run directly counter to the Practice of *Archagathus*, who had been condemned for his Cruelty; and to decry not only his Method, but also a great Part of the Medicines daily recommended by other Physicians. The Practice of *Asclepiades* consisted principally, [according to *Pliny*, *Lib. 26. Cap. 3.*] in throwing the Patient into a Sweat, by means of warm Coverings, or by exposing him to the Heat of the Fire, or the Rays of the Sun. *Asclepiades* also condemned the antient Manner of curing Quinsys by thrusting an Instrument forcibly down the Throat, in order to clear the Passage. But of all other things, he made the highest Remonstrances against Vomits, which, in these Days, were frequently used; and even against Purgatives, which he looked upon as hurtful to the Stomach.

At the same time that *Asclepiades* condemned and decried the above Medicines, he substituted in their room very mild ones, saying, *Tuto, celeriter & jucunde, id Votum est*: But adds *Celsus*, *Lib. 3. Cap. 4.* *Sed fere periculosa esse nimia & Festinatio & Voluptas solet.* It were to be wished, that Diseases could be cured surely, soon, and agreeably; but Attempts to cure too suddenly, or by means of too agreeable Medicines, are generally attended with Danger.

The superstitious Methods of curing Diseases, or the Magical Remedies, of which, before the Arrival of *Asclepiades*, they were so fond, which *Cato* himself had on some Occasions used, but which were beginning to be in Discredit, contributed not a little to the favourable and ready Reception of this new Physic of *Asclepiades*. This Observation *Pliny* makes in the Beginning of his twenty-sixth Book, where he uses these Words: *The Vanity of Magic was a Circumstance of more Use to him than any thing else.* One *Doringius*, a German Author, *de Medicina & Medicis*, not adverting that these Words of *Pliny* had a Relation to what he had said in the Beginning of the foregoing Chapter, explains this Passage, as if *Pliny* had intended to say, that *Asclepiades* had, in a particular manner, used Magic in his Practice of Physic, which is quite the Reverse of what *Pliny* thought, and inconsistent with the Character of *Asclepiades*, who was an *Epicurean*.

“Till the Days of *Asclepiades*, says *Pliny*, Antiquity stood it well out. In vain did *Herophilus* advance his refined Speculations; neither he, nor any of a like Character, were followed universally; and considerable Remains of antient Physic as yet supported themselves, with all the Authority they had ever acquired. But this second *Æsculapius*, having reduced all the Learning of a Physician to the Knowledge or Investigation of the Causes of Diseases, Physic, which at first was an Art founded on Experience, became *conjectural*, and entirely changed its Face.”

What easily gained a Party to *Asclepiades*, to the Prejudice of antient Physic, and made People relish his Reasoning, was, his using very mild and gentle Remedies, which *Pliny* reduces to five: Abstinence from Food; Abstinence from Wine on certain Occasions; Frictions; Walking; and Gestation. As People saw, that they could easily submit themselves to these, they judged the Physic of *Asclepiades* so much the better for its being easily practised. Besides, being very eloquent, and a great Philosopher, he attracted the Esteem almost of all Mankind, and was looked on as one sent from Heaven.

Pliny adds, that this Physician had the Art of gaining the Affections of People by certain Stratagems peculiar to himself; such as promising his Patients Wine, and actually giving them some on proper Occasions, and allowing them to drink cold Water, in order to refresh themselves. And as he had been among the first who used this Remedy, he took a certain Pleasure in being called *Δοσι-ψυχής*, or *The Giver of cold Water*. Wine, in the mean time, contributed no less to the Establishment of his Reputation. *Apuleius* says, that *Asclepiades* was the first of the Physicians, who prescribed Wine for the Relief of his Patients; and the same Author afterwards tells a Story of a Man being restored to Life by *Asclepiades*, after he was thought dead, and ready to be interred. He does not indeed mention his using Wine upon that Occasion; but from what he had before said, one may infer, that the Miracle was wrought by means of that Liquor, though the Author ascribes the Recovery of the Man to certain Medicines which *Asclepiades* gave him.

VOL. I.

This Physician also contrived, almost every Day, some new Invention to please and humour his Patients: He ordered them to be laid in pensile Beds, which were a Species of Cradles shaken, in order to lull the Patients to sleep, or mitigate their Pains. He also invented an hundred new Sorts of Baths, some of which were pensile.

This is, according to *Pliny*, the Character of *Asclepiades*; but as that Author is suspected of Partiality in characterising, we shall inquire what Sentiments others entertained concerning this Physician.

We find then, that almost all the Antients give a favourable Character of *Asclepiades*: *Apuleius* styles him *The Prince*, or *First of Physicians*, after *Hippocrates*. He is also by *Scribonius Largus* [in *Epistol. ad Callistum*] called, *A very great Author in Physic*. And *Sextus Empiricus*, *Adversus Mathematicos*, *Lib. 7.* calls him *A Physician inferior to none*. *Celsus* also had him in great Esteem. Another Proof of the great Reputation he had acquired, was his being desired by *Mithridates* to assume the Character of his Physician. But a Circumstance of all others the most advantageous to his Character is, his having been the Physician and intimate Friend of *Cicero*, as he himself testifies, [*De Oratore*, *Lib. 1.*] and at the same time seems to pay a great Deference to his Eloquence, which proves that this Physician did not quit the Profession of Rhetorician for want of a Capacity.

Galen, who declares himself against the Practice of *Asclepiades*, yet owns him to be very eloquent, but upbraids him with being a Sophist, and having a Practice of contradicting every one he had any thing to do with. *Caelius Aurelianus*, *Autor. Lib. 1. Cap. 15.* charges him with the same Fault. When *Asclepiades*, says he, was called to a Patient who had another Physician, he condemned all the Medicines that Physician had ordered, and approved of others which he had not mentioned, as if the same Medicines, which, when ordered by others, were noxious, became safe and salutary, when prescribed by him. The Author last quoted, draws this Consequence from a Passage in one of the Books of *Asclepiades*, where, in speaking of the Cure of a Phrensy, he says, that if a Person labouring under that Dis temper should fall into his Hands, before having come through those of any other Physician, or used any other Medicine, that in that Case he would use external Applications of strong-scented Substances, such as Castor, Hogs-senel, Rue, and Vinegar, or the Liquor in which these Substances had been infused; and that he would afterwards order him a Clyster to relieve the obstructed Parts; but, said he, if another Physician has before dealt with the Patient, all Cataplasms, Oils, and strong-scented Medicines, must be discharged in the very Beginning of the Cure, and the Patient must be removed from a dark Place to a clear and open Light. 'Tis possible, *Asclepiades* might not have followed this Practice from a Principle of Envy or Contradiction, as *Caelius Aurelianus* insinuates, but from a quite different Motive. As the same Disease may sometimes be cured by different Methods, he might possibly believe, that Success, on some Occasions, might attend a Change of the Method of Cure, from what it was in the Infancy of the Disease, or the passing from the Use of cold to hot Medicines, and from hot to cold. As a Proof, that *Asclepiades* entertained this Notion, he calls the Cure here mentioned, bold and extraordinary, not to be undertaken but in desperate Cases.

Pieces of Practice like this undoubtedly made People who were ignorant of the true Principle upon which *Asclepiades* acted, conclude, that he was an errant Quack. This is the Idea which *Pliny* seems to entertain of this famous Physician, in what he has hitherto advanced concerning him; and we can have no Reason to doubt, that this was his real Sentiment, if we consider the finishing Stroke of these Encomiums, which he pretends to bestow upon him [in *Lib. 7. Cap. 37.*] “*Asclepiades*, says he, having bid a Defiance to Fortune, by saying, he consented not to be esteemed a Physician, if ever he was attacked by any Disease whatever, remained victorious in this Point; for he died in an extreme old Age, and that by an accidental Fall from a Stair-case.” It is not probable, that a Man of so philosophical a Turn as *Asclepiades* was, would have talked in so ridiculous and foolish a manner.

We should be better able to form a Judgment of the Sentiments of *Asclepiades*, if his Writings had reached our Hands; but they are lost, as well as a great many other valuable Pieces of Antiquity, which would have undoubtedly given us Satisfaction with regard to a great many things, of which we must now be contented to remain ignorant. Tho' *Asclepiades* might not, possibly, have been a Model for the Direction of Practice, yet there would have been a certain Pleasure in reading his Works, since 'tis to be presumed they were beautifully written; and if they had not been a Standard for Physicians, they would have, at least, proved an Amusement for Philosophers, and served to illustrate the Doctrines of *Epicurus*, *Lucretius*, and *Democritus*. As the Reputation of this *Asclepiades* was very great, both during his Life, and after his Death, so he had a great Number of Disciples and Followers.

Among other antient Authors, who wrote on the Composition of Medicines, there were two called *Asclepiades*; but both different from the *Asclepiades* above-mentioned; for they are both quoted by *Galen*; and that Author observes, that they both lived after *Andromachus*, who was Physician to *Nero*.

The *Asclepiades* most frequently quoted by *Galen*, and whom he ordinarily calls by the single Name of *Asclepiades*, was more particularly distinguished by the Surname of *Pharmacion*, as *Galen* informs us; and this Surname denoted the principal Business of this Physician, which was the Composition of Medicines, by the *Greeks* called *Pharmaca*.

This *Asclepiades*, whom the learned Mr. *Di Capoa* confounds with the first-mentioned *Asclepiades*, wrote ten Books, five upon Medicines to be used externally; and five other upon such as were to be used internally. *Galen* says, he wrote very well, and ranks him among the best Authors who had handled that Subject. He even praises him in a particular manner, for his Exactness in describing the *Modus Faciendi*, or the precise Method one ought to take in making the Compositions he described. He also commends him for his Exactness in determining the Qualities of these Medicines, and the particular Manner in which they were to be used. The following is an Example of the Exactness of *Asclepiades*, and of the Advantages attending it:

The PLAISTER of ASCLEPIADES for CHIRONIAN ULCERS, and others of difficult Cure.

“ Take of Verdigrise, one Ounce; of Wax, half a Pound;
“ of the Resin of the Larch-tree, [*Venice Turpentine*]
“ half an Ounce. The Wax and Resin must be melted;
“ and after pounding the Verdigrise, add it to them; then
“ stir the Whole.”

The way of using it is this: Spread a little of this Plaister upon as much Leather as will cover the Ulcer; place round it some Medicine for preventing Inflammation, and let your Plaister lie on for three Days. Then wash the Part affected gently; wash also and soften the old Plaister, and apply it again to the Ulcer; continue this Method every three Days till the Cicatrix is formed.

Galen, who gives us an Account of this Method, after approving of it, tries to account for its Success, by a certain Relation the Plaister acquires to the Body of the Patient, by means of its long Stay upon the Ulcer. But this may be the more rationally accounted for in another way, which is, that by rarely raising the Plaister, or allowing it to remain on the Ulcer for three Days, the Cicatrix has more Time to form itself, and the Flesh is more commodiously nourished, because the Ulcer is by that means less frequently exposed to the Air, which, by introducing some foreign Substance into the Wound, breaks the Fibres which began to unite themselves, and form Flesh and Skin. Besides, the Motion excited in the Ulcer, or Part affected, by the taking away, and again applying, the Plaister, interrupts the Formation of the Cicatrix, by breaking and putting out of Order the Fibres, which, in such a Case, are very tender. In short, the renewing the Plaister, for the same Reason, retards the Cicatrix, because a fresh Plaister has always more Force and Penetration, than one which has been used before. There are a great many more *Asclepiades*; but as their Characters have nothing very remarkable in them, and as the Accounts we have of them, are involved in such Obscurity and Perplexity, as can never be surmounted by the greatest Industry, we shall say no more concerning them. *Le Clerc*.

ASCLEPIAS, a Plant thus distinguished:

Asclepias, Diosc. *Vincetoxicum Hirsutaria*, Offic. Chab. 119. *Asclepias flore albo*, Ger. 731. Emac. 898. Park. Theat. 387. C. B. Pin. 303. Raii Hist. 2. 1091. Hist. Oxon. 3. 611. Tourn. Inst. 94. Elem. Bot. 80. Boerh. Ind. A. 312. *Asclepias sive Vincetoxicum multis, floribus albicantibus*, J. B. 2. 138. *Apocynum Asclepias dictum*, Par. Bat. 43. *Vincetoxicon*, Rupp. Flor. Jen. 20. Buxb. 336. SWALLOW-WORT. Dale.

ASCLEPIAS runs up with long Shoots, on which are long Leaves like those of Ivy. The Roots are numerous, slender, and sweet-scented; the Flower of a strong Smell, the Seed like that of the *Securidaca* (Hatchet-vetch). It grows in the Mountains.

The Roots, drank in Wine, give Relief under the Gripes, and the Bites of venomous Animals. The Leaves, applied as a Cataplasin, are good in malignant Diseases of the Breasts and Uterus. *Dioscorides*, Lib. 3. Cap. 106.

The Roots of Swallow-wort are small and stringy, spreading very much in the Ground, and sending up many tough Stalks, about a Foot and half, or two Foot high, hardly able to support themselves; having at every Joint two Leaves, set opposite to one another, on very short Foot-stalks, which are round at the Base, an Inch and an half broad in the widest Part, and about three Inches long, growing narrower and sharp-pointed; on the Tops of the Stalks come forth small Bunches, of five-leaved Star-fashion white Flowers; each of which, in warm

Countries, where it is natural, is succeeded by two long slender Pods, containing small flat Seeds, lying among a silky Down. It grows with us only in Gardens, and flowers in June.

The Root, which is the only Part used, and that not very often, is accounted a mighty Counter-poison, both against the bad Effects of *Apocynum*, and other poisonous Herbs, and against the Bites and Stings of venomous Creatures: It is also helpful against malignant pestilential Fevers, which it carries off by Sweat; it is good likewise against the Dropsy and Jaundice. *Miller's Bot. Off.*

The Roots of *Swallow-wort* are bitter, acrid, and give a faint and red Colour to the blue Paper; the Leaves taste a little saltish, and give the same Paper a fainter red Colour, which makes me believe the Salt of this Plant is, in some measure, like the Oxyfal Diaphoreticum of *Angelus Sala*, a fixed Salt, a little too much impregnated with Acid; but in the *Swallow-wort*, it is involved in a great deal of Sulphur and Earth: Thus it is no wonder, that this Plant should be fudorific and detensive. *Tragus* affirms, that the Wine in which a Pound of its Roots has been macerated, and boiled to the Consumption of a Third-part, powerfully provokes Sweat, and gives Ease to those who are troubled with the Dropsy: The Decoction of this Plant renders the Humours volatile, and works both by Urine and Transpiration. This Decoction is preferable to that of *Scorzonera*, in malignant Fevers, and the Plague. For the Suppression of the Menfes, put one Ounce of the Root of *Swallow-wort* in a Pint of boiling Water; strain the Infusion, and give three Glasses of it to drink every Day, with the Syrup of Mugwort, or the Cachectic Aperitive Syrup of M. *Charas*, which is also very good for the Biting of a mad Dog. The Extract of its Roots and Leaves, from half a Dram to a Dram and an half, has the same Effect. The Herb, applied as a Cataplasin, dissolves the Tumors of the Breasts; the Powder of the Leaves and Root cleanses Ulcers, as well as that of Birthwort. *Martyn's Tornesfort*.

ASCLEPIOS, ἀσκληπιός, the Name of a dry Smegma, described by *P. Æginet. Lib. 7. Cap. 13.* and of a Troche in *Aetius, Tet. 4. Serm. 2. Cap. 50.* also of a Collyrium in *Galen, de C. M. S. L. Lib. 4. Cap. 7.* from *Scribonius*, which is also called *Athenippum*.

ASCLITES, a corrupt Word, used by Mistake, instead of *Ascleites*, by *Paracelsus* and *Avicenna*. *Castellus*.

ASCOMA, ἀσκόμα, from ἀσκός, a Bottle: The Eminence of the Pubes at Years of Maturity, most properly in the Female. *Ruffus Ephesus*.

ASCOS, ἀσκός, a Bottle. Ἀσκὸς σκύτινος, (from σκύτος, Leather) was a Leather Bottle filled with some Matter, as hot Water, or Oil, for the Fomentation and Warming of a diseased Part, and prescribed by *Hippocrates, Lib. 2. de Morb.* to be applied to the Forehead for easing Pains of the Head. He uses also the *Ascus* inflated with Wind, for restoring a gibbous Affection of the Spinal Vertebrae, and a Luxation of the Os Femoris, *Lib. de Artic. Galen*, in his *Exegesis*, expounds ἀσκός by κεραμοῦς, οὗς καὶ πυρεταῖος καὶ φακὸς ὀνομαζέσθαι, “ Earthen Pots, called also *Pyriati*, and *Phaci*,” (Lentils) that is, Vessels of a lenticular Figure, used in Fomentations. *Celsus, Lib. 2. Cap. 17.* speaking of Fomentations, says, *Quintiam calido Oleo replentur Utriculi, & in Vasa fistilia ad Similitudinem, quas Lenticulas vocant, Aqua conficitur.* “ More-over, Bottles are filled with hot Oil, and Water is put into “ Earthen Vessels, from their Figure called *Lentils*.” *Galen* seems to confound the *Utriculi* with the *Vasa fistilia*. Fomentations by these Earthen Vessels, and *Utriculi*, or little Leather Bottles, and Bags, are also prescribed by *Hippocrates, Lib. 2. περὶ γυναικ.* and Fomentations with the ἀσκαί, or *Utriculi*, *Lib. 7. Epid. and Lib. de Rat. Viét. in Acut.* for a Tetanus.

ASCYRUM, Offic. Ger. 434. Emac. 542. Raii Hist. 2. 1019. Merc. Bot. 1. 21. Phyt. Brit. 12. Mer. Pin. 11. *Ascyrum vulgare*, Park. Theat. 574. *Hypericum Ascyron dictum*, Chab. 445. *Hypericum Ascyron dictum, caule quadrangulo*, J. B. 3. 382. Raii Synop. 3. 344. Tourn. Inst. 255. Elem. Bot. 222. Boerh. Ind. A. 241. Dill. Cat. Giff. 171. Rupp. Flor. Jen. 99. Buxb. 163. *Hypericum seu Androsæmum Ascyron dictum, caule quadrangulo glabro*, Hist. Oxon. 2. 471. SAINT PETER'S WORT.

It grows in watery Places, and flowers in July and August. The Herb, the Flowers, and the Seed, are in Use; the Herb and Flowers having the same Virtues as *Hypericum*, or *St. John's Wort*. The Seed is useful in the Sciatica, and purges bilious Humours by Stool. Dale.

ASCYRUM, otherwise called *Ascyroides*, and *Androsæmum*, is a Species of *Hypericum*, but of a different Bigness, having larger Branches, and being more shrubby, or fuller of Shoots, with fine scarlet Leaves. It bears a purple Flower, and a Seed like that of *Hypericum*, which smells like Rosin, and stains the Fingers of those who handle it with a bloody Colour, whence it took the Name of *Androsæmum*.

The Seeds drank (to the Quantity of two Drams, according to Pliny) in a Pint of Hydromel, is good for the Sciatica, for it purges Bile plentifully; but the Dose ought to be continued till

Health

Health is restored. It is also effectual against Burnings, if used in a Cataplasma. *Dioscorides, Lib. 3. Cap. 172.*

ASDENIGI, AZEDEGINI, the Blood-stone. *Johns.*

ASE, ASSE, ἀσν, ἀσν, in *Hippocrates*, sometimes signifies a Loathing of Food, or Nausea, from a Conflux of Humours to the Stomach. So in *Aph. 61. Lib. 5.* if a Woman miss her Menfes, and no Shiverings or Fever succeed, ἀσναι δ' ἀντὶ προσπίπτωσι, "but a Loathing comes upon her," she has conceived. In *Lib. 7. Epid. ἀσν πρὸς τὴν καρδίαν*, is, "an Anxiety about the Heart (Mouth of the Stomach)." Ἀσν is also very often used by the same Author to express an Anxiety with a Restlessness and Jaſtation; and such Patients are called ἀσώδεις, though they be free from a Nausea; for, as *Galen, Comm. 2. in Prorrh.* writes, sick Persons are ἀσώδεις, on two Accounts; first when the Strength is so unable to support the Body, that the Patient can bear to lie in no Posture; and, secondly, when the Mouth of the Stomach is vellicated by corrupt Humours. The former Case is very dangerous, and the latter attended with a Nausea. So ἀσώδεις πυρετοί, in several Places of *Hippocrates*, signifies such Fevers as are attended with great Jaſtations and Anxieties.

ASEB, Alum. *Rulandus, Johnson.*

ASED, Leo. *Ibidem.*

ASEDENIGI, the Lapis Hæmatitis, Bloodstone.

ASEF, ALBASEF, Arabic Words for HYDROA, which see. *Blancard.*

ASEGEN, Dragons-blood. *Rulandus, Johnson.*

ASELLI, the same as MILLEPEDES, which see.

ASELLUS, Offic. Jonf. de Pisc. 1. *Asellus major*, Charit. de Pisc. 2. *Schonf. Ichth. 38. Asellus major vulgaris*, Raii Synop. Pisc. 53. *Asellus major vulgaris*, *Belgis Cabeliau*, Ejuſd. Ichth. 165. *Asellus*, *Merluccius*, *Cabeliau*, Mer. Pin. 184. *Gefn. de Aquat. 84. Morhua vulgaris*, (*maxima Asellorum Species*) *Bellon. de Pisc. 118. Morhua vel Molua altera*, *Aldrov. de Pisc. 289. Molua*, *Rondel. de Pisc. 1. 280. Molua vel Morhua altera minor Rondeletii*, *Gefn. de Aquat. 88.* THE COD-FISH, or KEELING. *Dale.*

You are to chuse that which is white, tender, fresh, and well tasted.

It is nourishing enough, and is a tolerable good Food.

Salt Cod is not near so well tasted as that which is fresh, neither is it so easy of Digestion, but harder and tougher. You are to steep it in Water before it is eaten; for, without that, it will heat much, and make you very dry.

It contains much Oil and volatile Salt.

It agrees at all times with any Age and Constitution.

R E M A R K S.

The Cod is a Sea Fish well known. It is much used for Food. When it is fresh and new, it produces good Juice, and is nourishing, because it contains a great Quantity of oily and balsamic Parts; but when it has been salted, and is too old, it is not so well tasted, nor so easy of Digestion; not only because the Bay-salt hath fixed and sunk down its more volatile Parts, and such as excite an agreeable Taste; but also because that being introduced into the Pores of the Fish, it makes it more solid, compact, and hard.

The Pickle of Cod is of a dissolving and drying Nature, when outwardly applied: They also use it among other things in Clysters; for it is laxative, because it contains much Salt, irritates the Intestinal Glands, and forces more Liquor out of them than before.

The Stock-fish used in *France*, and other Parts, is not so good as salted and dried Cod: Some pretend otherwise, and will have it to be the Melwel, called in *Latin*, *Molua major*: Be it as it will, Stock-fish is no good Food, because it is hard, tough, and not easily digested: However, there are many People that make a Ragout of it.

The Pickle of Melwel has the same Virtues as that of Cod. *Lemery on Foods.*

The ASELLUS MARINUS is the same as MERBANGIUS, which see.

ASEMOS, ἀσμη, from a Negative, and σῆμα, a Sign, is an Epithet, applied to Events that fall out contrary to all Appearance, and without any manifest Cause. Thus the Adverb ἀσμηως, in *Hippocrates*, is expounded by ἀκρίτως, ἀλόγως, or παρὰ λόγως. Thus, *Lib. 2. Epid. ὅποσα ἀσμηως ἀφανίζονται*, δύσχεστα, "whatever Symptoms disappear unaccountably, or without the critical Signs, shew a bad Crisis;" and in his *Prorrh.* τὰ ἐλάττω ἀσμηως βαρυνήσαντα θάνατον σημαίνει, "bad Symptoms, alleviated and mitigated for no Reason, and without the Signs of a Crisis, signify Death;" and again, τὰ ἀσμηως βαρυνήσαντα φιλονειγεῖν, "Mitigations, or Remissions, without the usual Signs which accompany a Crisis, foretel a Return of the Disease," which is often quoted by *Galen*, as in the Beginning of his *Lib. πρὸς κείστων ἡμερῶν*, and these are the most celebrated Axioms in the whole Doctrine of Crises. Ἀσμηως ὡς ἀνὶ ὁπάρμαστα, "Tubercles appeared without Significations," is explained in *Galen, Comm. 2. in Prorrh.* by χωρὶς σημείων, ἢ τοις ἰσχυρίσιν, ἢ πύλιν, "without any Signs

either of Excretion or Concoction; and ἀσμηως βαρυνήσαντα before-mentioned, is expounded by *Erotian*, τὰ χωρὶς φανεῶς ἐπιχειρίας εἰς τὸ βέλιον ἀποκλίνεσθαι, "Things changing for the better, without any manifest Assistance or Means."

Ἀσμη πνεύμαστα, in *Lib. 6. Epid.* is a small and scarcely sensible Respiration; and ἀσμη κατὰ πλευρὴν ἀλγύμαστα, is a slight and insignificant Pain in the Side.

ASENEC, the Sun. *Ruland. Johns.*

ASEPH, Plumous Alum. *Idem.*

ASEPTA, ἀσπητα, from a Negative, and σήπω, to putrefy. Unputrefy'd; but ἀσπητα, in *Hippoc. Lib. πρὸς παθῶν*, is expounded by *Galen, Com. ad Aph. 1. Lib. 6. ἀσπητα*, "unconcocted;" and he tells us, that it was usual with the Antients ἀσπητα καλεῖν ἀπὲρ ἡμεῖς ἀσπητα λέγομεν, "to call those things unputrefy'd, which we say are unconcocted." Thus, *Lib. 3. πρὸς διαίτης*, ἀσπητον διαχώρημα, is a crude or unputrefy'd Stool; as σεσηπὸς διαχώρημα, *ibid.* is a putrefy'd or concocted one. And *Galen, Lib. 1. de Loc. Affect. Cap. 3.* has the following Expression from *Erasistratus*: Τὰ γράφα, καὶ τὰ σήσαμα, καὶ πάντα τὰ διαχωρήματα παντάπασιν ἀσπητά τε καὶ ἀμείδωστα. "The Stones of Grapes, and Sesamum, and all other Matters which pass off by Stool, quite unputrefy'd, (unconcocted) and unchang'd."

ASERON, ἀσέρων, from ἄσπ, Molestation, Uneasiness. Troublesome, uneasy, noxious. *Hipp. Lib. de Fract. ἀσέρων* γὰρ εἶναι πρὸς τὴν ἰγνύην περισβαλλόμενον. "It might create Uneasiness, if apply'd to the Ham," speaking of a Chirurgical Cradle. Again, *ibid.* ἢ τὰ ἀσέρων ἢ, "if it be hurtful," that is, the Bone be hurtful to the Flesh. And, *Lib. de Artic.* you have ἀσέρων φόρημα, "an uneasy Burden," speaking of a Bandage apply'd to a fractur'd Nose. In the foremention'd Places ἀσέρων is expounded by *Erotian* ἀσπς ποιητικόν, "causing Molestation and Uneasiness."

ASIGI. The same as ASINGAR, which see.

ASILUS, *Oestrus*, *Tabanus*, ὄιστρος, μύωψ. An Insect with one Pair of Wings, which carries its Sting in its Mouth, and is describ'd by *Aldrovandus*. *Pliny* calls *Afyllus* the Fly that infests Cattle, and tells us, from the Magi, that the Worms out of which these Flies were bred, were used, before their Wings budded, as an Amulet against Fevers. *Pliny, Lib. 11. Cap. 28. and Lib. 30. Cap. 11.*

ASIMION, ἀσιμιον. The Name of an Ingredient in *Myrrhus*, *Antidot. 465.* of which his Translator and Commentator *Fuchsius* ingenuously confesses himself ignorant. *Myrrhus*.

ASINEOS, ASINES, ἀσινεως, ἀσινεος, from a Negative, and σῆμα, Hurt, Mischief. Without Harm or Damage. *Lib. 1. & 2. Epid.*

ASINGAR, ASUGAR, ASMIAR, ASIGI, Verdegriſea. *Rulandus.*

ASINUS, Offic. *Schrod. 5. 269. Mer. Pin. 166. Schw. Quad. 61. Raii Synop. A. 63. Aldrov. de Quad. 295. Jonf. de Quad. 12. Charlt. Exer. 4. Gefn. de Quad. 1. THE ASS. Dale.*

The *Ass* is an Animal too well known to require a Description. It has the Misfortune to be much less esteem'd in our Days, than amongst the Antients, who paid it a very great Respect, as we may infer from a great Number of Passages in the *Greek Writers*.

Mr. *Baxter* is of Opinion, that the *Anchialus* mention'd by *Martial*, as something sacred amongst the *Jews*, and by which he insinuates that they swear, means an *Ass*, *Rudens Deus*. For why, says he, may it not be said *אנחאל*, *Anchiel*, that is, *Rudens Deus*, or *Ὀρίθις*, in the same Form as *אוריאל*, *Ariel*, *Leoninus Deus*, or *Λεωνίδης*; We know the old Reproach in *Tertullian*, *DEUS CHRISTIANORUM ONOCHORITES* (for so it should be read); whence *Petronius*:

*Judæus licet & porcinum Numen adoret,
Et cilli summas advoctet Auriculas.*

Epiphanius also speaking of the *Gnostics*: Φασὶ δὲ τὸν [Θεόν] Σαββαθὸν εἶναι μὲν ὅντι μορφοῦν ἔχειν, οἱ δὲ χοίρειον. "They say, that the [God] Sabbath has the Form of an *Ass*; others say of a Swine." It appears also from *Plutarch*, in *Iside*, that the *Ass* and Swine, among the *Egyptians*, were both sacred to *Typhon*; and even that this *Typhon* begat *Hierosolymus* and *Judæus*. 'Tis probable therefore, that the antient *Jews* spared *Asses* and Swine out of Contradiction to the *Egyptians*, by whom they were slaughter'd as opposite Deities. *Baxter's Glossarium.*

ASSES DUNO.

We have known, says *Actius*, the Juice of *Asses Dung* highly beneficial in a Dysentery, especially if the Beast has been fed upon the Mountains, or has had an astringent Pasture. If the Juice be insufficient, let the Dung be moisten'd with the Juice of Plantain, which must afterwards be express'd and infused. *Actius, Tetrab. 3. Serm. 1. Cap. 45.*

It is also recommended for stopping Hemorrhages.

ASSES

ASP

ASSES HOOF.

The Hoofs of Asses calcin'd, and drank every Day, are said to cure the Epilepsy; and, mix'd and work'd with Oil, to discuss strumous Swellings: Also the Ashes of the same, well-beaten in Woman's Milk, and reduced to a Collyrium, are supposed to deterge Cicatrices in the Eyes, if rubb'd thereon, together with Milk. *Aetius, Tetrab. 1. Sermon. 2. Cap. 157.*

It is also recommended for healing Chilblains, Chaps in the Skin, for discussing Apoplems, and for expelling the dead Foetus, and in Hysterical Cases.

ASSES FLESH.

Next, inferior to the Flesh of Stags, which is itself of bad Juice, hard, and difficult of Digestion, is the Flesh of wild Asses; but that of tame Asses, especially when they are old, tho' eaten by some, is of very bad Juice, difficult of Concoction, quite foreign to the Stomach, and ungrateful to the Palate. *Oribas. Med. Coll. Lib. 2. Cap. 28.*

The Flesh of Animals which have solid Hoofs, is most vile Food; but of these the best and lightest (as they say who have travell'd over *Asia*) is the Flesh of wild Asses. *Ibid. Cap. 68.*

The Blood of an Ass is said to be sudorific; and that of a young Ass to cure the Jaundice.

Asses Milk is very nourishing and abstergent, and is therefore esteem'd good in a Consumption, in Disorders of the Stomach, Abscesses of the Kidneys, the Stone in the Bladder, and Arthritic Pains. It is esteem'd gently cathartic, and was frequently directed by *Hippocrates* as a Purge, in large Quantities. As a Topic, it makes the Gums firm, eases Arthritic Pains, and gives the Face an agreeable Whiteness, if wash'd with it. See *LAC.*

The Urine of an Ass is a powerful Remedy, as is said, in Disorders of the Kidneys; cures the Itch; takes away Warts, and callous Excrescences; and relieves in Atrophies, and Palsies of the Limbs, and Pains of the Gout. *Dale from Schroder.*

ASJOGAM, *Il. M. Part. 5. Tab. 59. Arbor Indica Foliiis aduersis, flore flavescente tetrapetalo odorato, Fructu nondum comperto.*

It is a Tree of a moderate Bigness, about fifteen Feet high, and grows in the Kingdom of *Malabar* in the *East-Indies*.

The express'd Juice of the Leaves, mix'd with Cumin-seed pulveriz'd, is said to cure the Colic; and the Powder of the Leaves, taken with Sugar and yellow Sanders, to amend and purge the Blood. *Ray Hist. Plant. 1786.*

ASIRACUS, ἀσίρακος. A Species of Locusts, call'd also *Onoi*, ὄνοι, in *Dioscorides, Lib. 2. Cap. 57.* See *LOCUSTA*.

ΑΣΙΤΟΙ, ἀσίτοι. From a Negative, and σίτω, Food, are those who abstain from Food. In *Aph. 32. Lib. 2.* they are call'd ἀσιτέυοντες, who, in *Aph. 8.* of the same Book, are said to be τέρερον μὴ λαμβάνοντες, "such as receive no Aliment," as ἀσιτέυον is oppos'd to ἐσθιέμεν, which is express'd by τέρερον λαμβάνοντες, "to take Food," in the same Aphorism. This is according to the usual Way of speaking among the *Greeks*; for, as *Galen* says, *Com. ad Aph. 8. Lib. 2.* λέγοντες δὲ ἡμῖν ἐσθιέμεν μὴ λαμβάνοντες μὲν τέρερον τῶν ἀσπερίων, λαμβάνοντες δὲ τῶν ἐρεργον τῶν τε καὶ τρεπομένων ἀχει κόρον. "It is usual with us to say of "those who have no Appetite, that they receive no Aliment; "and of those who hunger and feed to Satiety, that they receive Aliment." Hence it comes, that ἀσίτοι signifies the same as ἀποσίτοι, "such as have an Aversion to Food;" and *Galen*, on *Aph. 32. Lib. 2.* expounds ἀσιτέυοντες by ἀποσίτους and ἀνορέτους. And ἀσίτη also means the same as ἀποσίτη.

ΑΣΙΤΙΑ, ἀσίτη, from a Negative, and σίτω, Aliment. See *ANOREXIA* and *APOSITIA*.

ASIUS *Lapis.* See *ASSIUS*.

ASMAGA, a mixing of certain Metals together. *Rulandus. Johnson.*

ASMUM, Weight. *Johnson.*

ASODES, ἀσώδης. See *ASE*.

ASOPER, Soot. *Rulandus.*

ASPALATHUS. *Lignum Aspalathi*, & *Rhodinum*, *Offic. Rhodium Lignum*, *Schrod. 4. 137. Geoff. Tracl. 313. Radix Rhodina, Lignum Rhodinum*, *Mont. Exot. 7. Aspalathus*, *Ind. Med. 15. ROSE-WOOD, or RHODIUM.*

Aspalathus, which some call *Eryfsceptrum*, is a woody Shrub thick set with Thorns. It grows by the *Danube*, and in *Nisyrus*, *Syria*, and *Rhodes*. The Perfumers use it to thicken their Ointments. What is good is ponderous and reddish, or purplish, when stript of the Bark, close, sweet-scented, [of the Smell of *Castor*, *Pliny*] and bitterish to the Taste. There is another Species of it, which is white, ligneous, and has no Smell, and this is less valued.

It is of a heating Quality, join'd with an Astringency; for which Reason a Decoction thereof, in Wine gargariz'd, is good for Aphthæ, and to wash spreading Ulcers, and other Impurities in the *Pudenda*, and also the *Ozæna*. Mix'd in a Pessary, it expels the Foetus. The Decoction thereof, drank,

ASP

stops a Looseness, and throwing up of Blood; and relieves under Difficulty of Urine and Inflammations. *Dioscorides, Lib. 1. Cap. 19.*

The *Aspalathus* grows in *Egypt* and *Cyprus*: It is a white Thorn, of the Bigness of a moderate Tree, and has a Flower like a Rose: The Root is used in Ointments. It is of a smaller Growth, but equally thorny, in *Nisyrus* and *Rhodes*. They call it also *Eryfsceptrum*, *Sceptrum*, *Adipfatheon*, *Dipsacon*, and *Diacheton*. *Pliny, Lib. 12. Cap. 24. & Lib. 24. Cap. 13.*

The Tree which bears this Wood, is believed, by *Herman* and others, to be a *Cytisus*. It is brought us from the *Morea*, where it grows, being very resinous, and of a pleasant Smell, resembling that of *Roses*. The *Hollanders*, being in Quest of some Ships which perish'd on the Coast of *New-Holland*, in the thirty-third or thirty-fourth Degree of Southern Latitude, found on that Coast a great Quantity of this Wood. It is also much esteem'd in *China*, where its Infusion in Water is believ'd to cure or prevent many Diseases. An essential Oil is got from it, which has so much the Smell of *Roses*, as to be often substituted for their essential Oil; but the Smell of the first Kind is never so strong as that of the other. This Oil is sometimes used by Barbers, to make their Water smell agreeably. When the Antients term'd this Wood *Lignum Rhodium*, we know not whether they intended to express, that it grows in the Island of *Rhodes*, or smells like a Rose. *Geoffroy.*

ASPALTUM, for ASPHALTUM, which see. *Rulandus. Johnson.*

ASPARAGUS, *Offic. Park. Parad. 503. Raii Hist. 1. 683. Synop. 3. 267. Ασπάργωρος, Dioscorides. Asparagus sativus, Ger. 953. Emac. 1110. Mer. Pin. 11. Asparagus sativa, C. B. Pin. 489. Tourn. Inst. 300. Elem. Bot. 249. Boerh. Ind. A. 2. 65. Rupp. Flor. Jen. 126. Asparagus hortensis & pratensis, J. B. 3. 725. Asparagus sive Aspharagus, Chab. 550. Asparagus domesticus, Hist. Oxon. 2. 3. Asparagus vulgaris, Merc. Bot. 1. 21. Phyt. Brit. 12. SPARROW-GRASS.*

The Root of *Asparagus*, corruptly call'd *Sparrow-grass*, has a Head thick and spongy, shooting out, all round, long cylindrical Shoots, about the Thickness of a large Goose-quill, with few or no Fibres. From the Roots, in the Spring, arise many greenish-yellow Stalks, with brittle scaly Tops, bigger or less, according to the Difference of their Culture; which, as the Summer comes on, arise higher, and open into numerous Branches, cover'd with Leaves, as fine as Fenel, but very short, and encompassing the Stalk Star-fashion; among these grow small greenish six-leaved Flowers, one of which is follow'd by a round Berry, green at first, and, when ripe, of a shining-red Colour, in which are hard tough Seeds.

Asparagus is found wild in some Parts of *England*, near the Sea-coast; as in *Cornwall*, near the *Lizard-point*; about *Bristol*, and other Places; but the best is cultivated in Gardens.

The Root is one of the five opening Roots.

The Top of the Plant, or first Bud, is a Species of Food highly esteem'd by every body. *Augustus* made very much use of it, as *Suetonius* informs us in that Emperor's Life. *Erasmus* also, in his *Adagia*, tells us the same thing. It is very grateful to the Stomach, especially if eaten in the Beginning of Dinner. It procures Appetite, and tho' the Quantity of Nourishment it affords is not a great deal, 'tis still more than other Pot-herbs yield, especially if it is well digested, as *Galen* informs us, *Lib. Aliment. Cap. 59.* If 'tis eaten before Dinner, it refreshes and opens the Liver, Spleen, and Kidneys, puts the Body in an agreeable State, and excites a Discharge of the Urine, which it renders fetid and ill-smell'd, *Rod. a Fonseca, Tom. 1. Consil. Med. p. 599. Carol. Rayger. in Schol. ad Obs. Med. 61.* It is of admirable Service to those who labour under Suppressions of Urine, or the Gravel. It is excellent for those who are scorbutic or dropsical: It augments the Seminal Secretions, and proves a Stimulus to Venery. It is also of singular Efficacy in Disorders of the Eyes, *Plin. Lib. 2. Cap. 10.* But it is very hurtful to such as labour under the Gout, *Crat. Lib. 7. Conf. 21.* 'Tis also prejudicial to those who have weak Stomachs. *C. Hoffman [Lib. 5. Instit. Med. C. 42. Sect. 1.]* says, he knew Instances of their being thrown up undigested next Day, even tho' they had been very well prepar'd, especially by Women with Child. Their frequent and immoderate Use renders Women barren, *Ephem. N. G. Dec. 2. Ann. 5. App. p. 67. Claud. Deodat. Panth. Hygiast. L. 2. C. 22. Querc. in Diet. Polyhist. 8. 3. C. 2. Got. Mæbius, Epit. Instit. Med. L. 4. Part. 2. C. 3. Chr. Fr. Paullin. Libr. Sing. de Jalapa. L. 2. P. 3. C. 23. & Cent. 3. Obs. Med. Phys. 58.* The Root is principally in Use in the Shops, which is of a sweet and agreeable Taste, and is one of the five opening Roots; for which Reason 'tis used in those Disorders which proceed from Constipation. It in a remarkable manner purges the Breast, the Liver, Spleen, and Kidneys; and is esteem'd good for the Jaundice, Dropsy, and Consumption. *Theod. Tabernemontanus* gives us the Preparation of a Wine from the *Asparagus*, which performs Wonders in Cases of the Stone in the Bladder or Kidneys. See also *Gualt. Charlett. de Lithias. p. 170.* If the Root

Root is put upon a Tooth that aches violently, it causes it to come out without Pain, according to *Ant. Mizald. Cent. 7. Memorab. Aph. 34. Schenck. Obs. Med. L. 1.* Its red Grains, when dry'd and reduced to a Powder, cure Dysenteries and Fluxes.

Asparagus sylvestris, Diosc. *Asparagus pratensis*, J. B. 3. 725. Chab. 550. *Asparagus sylvestris, tenuissimo folio*, C. B. Pin. 490. Tourn. Inst. 300. Elem. Bot. 249. Boerh. Ind. A. 2. 65. Bot. Monsp. 30. WILD SPARROW-GRASS.

This only differs from the preceding by Culture. Dale.

Its Root is sweetish and glutinous, like that of the common *Sparagus*; it gives hardly any Tincture of Red to the blue Paper, which makes it probable, that its Salt resembles the vitriolated Tartar, dissolved in a great deal of Phlegm, thicken'd with some Earth and Sulphur, by which the Root is an Aperitive, a little temper'd. Martyn's Tournefort.

Asparagus petræa, Corrua, Offic. *Asparagus petræa*, Ger. 953. Emac. 1110. *Asparagus petræus, sive Corrua*, Raii Hist. 1. 683. Hist. Oxon. 2. 3. *Asparagus petræus, sive Corrua aculeata*, Park. Theat. 454. *Asparagus foliis acutis*, C. B. Pin. 490. Tourn. Inst. 300. Elem. Bot. 249. *Asparagus spinosus Corrua dictus*, Rupp. Flor. Jen. 126. *Corrua*, J. B. 3. 726. *Corrua sive Asparagus sylvestris*, Chab. 550. ROCK SPARROW-GRASS.

The young Shoots and Roots of these are used in the same Intentions, as those of the *Asparagus sativus*.

ASPASIA, the Name of a constrictive Medicine for the *Pudenda muliebria*. It consisted only of Wool, moisten'd with an Infusion of unripe Galls. Castells.

ASPER, a sort of small River-fish found in the *Rhone*. It takes the Name from the Roughness of the Scales and Jaws. It is good to eat, and is esteem'd aperitive.

The common People inquire frequently for Oil of *Asper* at the Chymists, which they use, as is pretended, to catch Fish. It is probably Oil of Ospray which they mean; for a Fable has, for time immemorial, prevail'd amongst the Vulgar, that the Ospray drops, as he flies on the Surface of the Water, something into it, which allures the Fish to it, that he may take them. Hence the Oil of this Bird has been esteem'd to have the same Effect. As there is no such thing as this Oil, the Chymists oblige their Customers with Oil of Box, or some other fetid Oil.

ASPERA ARTERIA. See ARTERIA, and PULMONES.

ASPERATA. See ASPERUM.

ASPERELLA. The same as ASPRELLA, which see.

ASPERGULA ASPERUGO. See ASPERULA.

ASPERIFOLIUS, of *Asper*, rough, and *Folium*, a Leaf. *Asperifolius* is an Epithet for such Plants as are rough-leaved, having their Leaves placed alternately, or without any certain Order, on their Stalks. They have a monopetalous Flower, cut or divided into five: After every Flower there succeed commonly four Seeds, such as Bugloss, Borage, Comfrey, Hound's-tongue, &c. Miller's Dictionary.

ASPERISIO, *πεσπασμα, βανισμός, βανίς, βανίς*. Sprinkling is a well-known Application of some medicinal Liquid, or pulveriz'd Matter, in a thin superficial Way, or by small Portions. Scrib. Larg. N° 46. 207. & alibi. Hence such Medicines as are administer'd by way of Sprinkling, or Aspersio, are call'd, in Greek, *συνπασμωδία*, and in Latin *Aspergines*. Castells. Blancard.

ASPERULA. *Asperula odorata*, *Aspergula*, *Asperula*, Offic. *Asperula odorata*, S. Paul. 25. *Asperula*, Ger. 966. Emac. 1124. Raii Hist. 1. 483. Synop. 3. 224. *Asperula aut Asperula odorata*, Park. Theat. 563. *Asperula seu Rubecola montana odorata*, C. B. Pin. 334. *Asperula odorata flore albo*, Boerh. Ind. A. 149. Hist. Oxon. 3. 331. *Asperula sylvatica*, Rupp. Flor. Jen. 4. *Rubus accedens Asperula quibuscum, sive Hepatica stellaris*, J. B. 3. 718. Chab. 548. *Aparine latifolia humilior montana*, Tourn. Inst. 114. Elem. Bot. 93. Buxb. 23. *Matrifolia Trago*, Volck. 281. *Hepatica stellata*, Chom. 501. WOOD-ROOF. Dale.

The Stalks of Woodroof seldom grow above a Foot high, square and slender, and but little branch'd, having seven or eight long green Leaves growing in a Circle at every Joint, broader than Clivers, but with little or no Roughness: The Flowers grow on the Tops of the Stalk, in small Umbels, of little single-leaved white Flowers, cut into four Segments, of a sweet Smell; each of which is succeeded by two round roughish Seeds, less than those of Clivers. The Root is small, slender, and creeping in the upper Crust of the Earth. It grows in Woods and Copes, and flowers in May.

Woodroof is esteem'd to be a good Hepatic, and useful against Inflammations of the Liver, and Obstructions of the Gall-bladder, and the Jaundice: The Germans put it into their Wine, as we do *Borage* and *Burnet*, as a great Cordial, and Comforter of the Spirits. The green Herb, bruised, is apply'd by some Country Folks to hot Tumors and Inflammations, and to fresh Cuts. Miller's Bot. Off.

ASPERUM, *τεχχὺ*, rough, is an Epithet apply'd to a Body of an uneven Superficies, grating to the Touch, which Property is call'd *Asperitas*; or *Aspritudo*; *τεχχὺτης*, Roughness. In *Scribonius Largus* we read *Asprum* for *Asperum*; by a Syncope, N° 180. Every rough Body is uneven, says *Galen*; but, on the contrary, every uneven Body is not rough. Roughness or Asperity, according to the same Author, is occasion'd from Constriction, or too great Dryness, or from Acrimony. *Gali. Comment. in Lib. 1. Hipp. de Morb. vulg. & Lib. de Pitifana, C. 5.*

Asperata quæ levent, simple Medicines smoothing Asperities enumerated by *Celsus*, are, Spodium, Ebony, Gum Arabic, the White of an Egg, Gum Tragacanth. *Celsus, Lib. 5. Cap. 13.*

ASPHALATUS. The same as ASPALATHUS, which see.

ASPHALEIA, *ἀσφάλεια*, from a Negative, and *σφάλω*, to deceive. Security, Firmness; and *ἀσφαλές*, safe, secure. *Hippocr. 5. Aph. 22. & 2. Aph. 15.*

ASPHALTITIS, *ασφαλίτις*, according to *Archigenes*, a kind of Trefoil with a larger Leaf, used by the *Coronarii*; (Garland-weavers) but *Dioscorides* writes, that Trefoil was simply so call'd, *Gorræus*. *Dioscorides* makes the Name of it *ἀσφάλιον*, not *ασφαλίτις*, *Lib. 3. Cap. 123. Edit. Wechel. 1598.*

Asphaltitis is also a Name given by some to the last of the Vertebrae of the Loins. *Gorræus*.

ASPHALTOS & *Bitumen Judaicum*, Offic. *Bitumen*, Calc. Mus. 174. *Bitumen Judaicum*, Worm. 30. Charlt. Foss. 14. Aldrov. Mus. Metall. 381. *Bitumen nigrum crassum*, Kentm. 21. *Bitumen Judaicum Asphaltum*, Mont. Ind. 12. JEWS PITCH.

The Asphaltum of *Dioscorides*, and *Bitumen Judaicum* of the Shops, call'd *Carabe* and *Gummi Funerum* by *Serapion*, and by others *Mumia*, is a solid, brittle, ponderous Substance, of a red, blackish, or dark Colour; easily inflammable, and of a strong bituminous Smell, especially when warm, and fusible by Fire. It is found in several Parts, but the best is that which comes from *Judea*, where it is gather'd on the *Dead Sea*, call'd from thence the *Lake Asphaltites*. It is probable, that a great Quantity of this Bitumen rises from the Bottom of that Lake to the Surface of the Water. At first it is so soft, viscid, and glutinous, that it can with Difficulty be separated from any Part which it touches, but in time it grows harder than Pitch; and, from the Place where it is found, it is call'd *Carabe* of *Sodom*; *Carabe* being used often by the *Arabians* to denote any solid Bitumen, and the *Dead Sea* being the Lake where *Sodom* stood. The Names of *Gummi Funerum* and *Mumia* were given it, because the common People, among the *Egyptians*, used it in embalming and preserving dead Bodies.

The true *Bitumen Judaicum* is seldom brought to us; for *Dioscorides* directs us to make Choice of that which shines like Purple, and to reject the black Kind as being foul, and of small Value; but all that we see of that Kind is black; though even that, when broken in Pieces, appears, against the Light, to be of a Saffron Colour; and therefore it is possible this may be the same Kind recommended by *Dioscorides*, only boil'd to a hard Consistence in Brass Kettles, before it is sent to us.

It is of a discentient, emollient, and agglutinating Quality. It dissolves coagulated Blood, and promotes the Menstrual Discharge. It is an Ingredient in the *Venice Treacle*, and in the Embalming Powder of *Charax*. *Geoffroy*.

ASPHARAGUS. The same as ASPARAGUS, but spelt with a φ instead of a π, according to the *Attic Dialect*. *Blancard*.

ASPHENDAMNOS, SPHENDAMNOS. A Mountain Maple. *Blancard*.

ASPHODELUS. The Asphodel.

The Asphodel is a well known Plant, with Leaves like a large Leek, and a smooth Stalk, bearing on its Top a Flower call'd *Anthericos*. [The Translator of *Nicander* makes *Anthericos* the Fruit, and *Anthelix* the Stalk of the Asphodel. See ANTHERICOS.]

The Roots are oblong, smooth, and like an Acorn, of an acrimonious Taste, and heating Quality. Being drank, they provoke Urine and the Menstrues; and the Weight of a Dram taken in Wine cures Pains in the Side, Coughs, Convulsions, and Ruptures. The Quantity of a Dye eaten as Food facilitates Vomiting; and three Drams are an effectual Dose for those who are bitten by Serpents: But a Cataplasm of the Root, Leaves, and Flowers, with Wine, must at the same time be apply'd to the Place. The Root boiled in Lees of Wine makes a good Cataplasm for foul and spreading Ulcers, and for Inflammations of the Breasts or Testicles; to recent Inflammations it is apply'd with *Polenta*. The Juice of the Root mixed with old sweet Wine, [*παλαιὸν γλυκὺν*] Myrrh, and Saffron, and boiled all together, makes a good Medicine to anoint the Eyes. The same warm by itself, or with Frankincense, Honey, Wine, and Myrrh, is proper for purulent Ears, and cures the

Pain of the Teeth, if dropped into the opposite Ear. The Ashes of the burnt Root rubbed on an Alopecia cause new Hair to spring. Oil boiled in the Roots hollowed, and set over the Fire, is good to anoint exulcerated Chilblains, and Ambustions; and dropped into the Ears it eases the Pains therein. The Root absterges the white Alphus, [*ἀλφὺς λευκὸν*] if the Part affected be first rubbed with a Linen Cloth, and then anointed. The Seed and Flowers drank in Wine are a most effectual Antidote against the Scolopendra and Scorpion, but disturb the Belly. *Dioscorides, Lib. 2. Cap. 199.*

This Asphodel does not seem to be the same as that taken Notice of by *Hesiod*, which he represents as eatable, by way of Food, and joins it with the Mallows.

Asphodelus verus albus, Offic. *Ἀσφὸδελος*, Dioscorides, *Asphodelus ramosus*, Ger. 86. (*figura est transposita*) Emac. 93. *Asphodelus albus ramosus mas*, C. B. Pin. 28. Tourn. Inf. 343. Elem. Bot. 286. Boerh. Ind. A. 2. 110. *Asphodelus major albus ramosus*, Park. Parad. 146. *Asphodelus major ramosus flore albo*, J. B. 2. 625. Chab. 221. Raii Hist. 2. 1191. *Asphodelus albus ramosus*, Hist. Oxon. 2. 330. WHITE ASPHODEL.

The Stalks of the white Asphodel grow to be two or three Feet high, branched toward the Top, divided into several Spikes of starry white Flowers, each being monopetalous, divided into five Parts, with a purple Line on the Back of each, and several yellow Chives in the Middle. The Leaves are long and narrow, and sharp-pointed, hollow'd in the Middle like a Sword-blade. The Root is composed of a great many long, roundish, tuberous Glandules, growing from a stringy Head. It is planted with us in Gardens, its native Place being Italy, Spain, and the Southern Parts of France, and flowers in May.

The Roots of this Plant were used by the Antients to provoke Urine, and bring down the Menfes; but it is very rarely met with in the Practice of Physic. *Miller's Bot. Off.*

Asphodelus verus luteus, *hastula regia*, Offic. *Asphodelus luteus*, Ger. 87. Emac. 94. J. B. 2. 632. Chab. 221. Raii Hist. 2. 1192. *Asphodelus luteus*, & *flore*, & *radice*, C. B. Pin. 28. Rupp. Flor. Jen. 124. Tourn. Inf. 344. Boerh. Ind. A. 2. 110. *Asphodelus luteus minor sive Hastula regia*, Park. Parad. 147. *Asphodelus folio fistuloso striato, non ramosus*, *luteus*, & *flore*, & *radice*, Hist. Oxon. 2. 331. KINGS SPEAR. Dale.

This is a lower Plant than the former, and much less branch'd. The Leaves are long, hollow, and fistular, somewhat triangular; the Leaves grow in Spikes of a yellow Colour, larger than the other, of the same Shape and Make. The Root is composed of the like Clogs and Glandules, of a yellow Colour. This likewise is a Native of Italy and Sicily, and is planted here in Gardens, flowering in May and June.

The same Virtues are attributed to this, as to the former, but it is seldom used. *Miller's Bot. Off.*

Bartholomæus Zorn is more particular with respect to this Plant; for which Reason I shall give his Chapter upon it.

Asphodelus, *Asphodelus* & *Hastula regia*. *Asphodelus luteus*, Dod. J. B. Chabr. *Luteus* & *flore et radice*, C. B. *Luteus minor sive Hastula regia*, Park. *Folio fistuloso striato, non ramosus*. *Luteus* & *flore* & *radice*, Moris. H. 2. *Iphion* Theophrasti, *Ἀσφὸδελος*, Græc. *Erizambac*, Arab. *Bernhardi Testicululus*. Others call it *Anthericum*, which, according to the Fiction of *Lucian*, the Ghosts of the Damn'd eat in Hell. It is an Herb well enough known in our Gardens, on account of its beautiful Flowers. It grows naturally in many Parts of Italy, France, and Spain. The Poet *Hesiod* makes very honourable mention of it. There are three Sorts of it, two of which are white and prickly on the Edges, but the other Species is of a yellow Colour. The Root is principally used, which is hot, and of a strong bitter Taste. *Fallopian, L. de Canter. C. 10.* reckons it among the best of the milder Cathartics. It is of a warming, drying, opening, dissolving, purgative, and cleansing Nature. It also excites a Discharge of the Urine and Menfes; is good for Spasms, cures Ruptures, Jaundice, and the Dropsy. A Decoction of the Roots of Asphodel, used as common Drink, is a powerful Medicine. *Guil. Parign. Secret. Med. p. m. 131.* The Root boiled in Wine or Water, and sufficiently triturated when dry, cleanses and cures old corrosive and fetid Wounds and Ulcers, Swellings of the Breasts and Privy-parts; as also bloody Ulcers, *Plin. L. 22. C. 22.* A Cataplasm is also prepared of it and Pitch, for removing the Stench of the Feet, *P. Laurenb. Horticult. L. 2. C. 7. p. 114.* If beat, and laid upon scrophulous Swellings, it cures them, *Forest. L. 3. Obs. Chir. 11.* and heals Chilblains, whether exulcerated or not, *J. Prævot. in Med. Paup. Job. Scultet. in Armament. Chir. Obs. 83.* The Vinegar in which the Root has been boiled, if used for washing the Body, cures the Itch, and other scorbutic Eruptions. Some roast the Root in hot Ashes, and rub their Faces and Hands with it, in order to remove all Blotches, and purify the Skin. The Root also causes the Hair to grow fast, and curl: See *Laurenberg. Appar. Plantar. L. 2. C. 7.* The Root burnt to Ashes, and

mixed with Honey, makes the Hair grow again on those Parts from which it is fallen off. This Root reduced to Powder, and mixed with calcined Alum, corrodes the proud Flesh of foul Ulcers, if apply'd to them. If a House is smoaked with this Root, it banishes Mice, and proves a Poison to them. If its Root is put into the Water which Swine drink, it prevents their being affected with a pestilential Leprosy; or if they are so, it restores them to their natural State. It also produces the same Effect, if they are frequently washed with such a Water. *Florentinus.*

ASPHYXIA, *ἀσφυξία*, from *α* Negative, and *σφύζω*, a Pulse, from *σφύζω*, to leap, or beat like an Artery. A Privation of the Pulse, when no Artery seems to be moved, or no Motion is perceptible to the Touch. A total Privation of the Pulse indeed cannot be while the Animal is alive; but with respect to our Sense of Feeling, a Privation often happens, *Galen. Lib. 1. de Præcogn. ex Puls.* The same is occasioned two Ways, which are either a total Abolition of the Pulse of the Arteries, which is the most mortal of all Symptoms, or because it beats so weakly and remissly, as to escape all Notice by the Touch. *Galen. Lib. 2. de Præfag. ex Puls.*

Ἀσφυξία is rendered by *Cælius Aurelianus, Cap. 3. Lib. 4. Tard. Pass. Pulsus Parvitas et Amputatio*, “a Smallness and “Amputation of the Pulse.”

Ἀσφυξίαι, in *Galen, Lib. 4. de Diff. Puls. Cap. 3.* are such as are deprived of Pulse, or have no perceptible Motion of their Arteries.

ASPIC.

There is an Oil, called by the French *Oil of Aspic*, drawn from a Plant which *C. Bauhine* calls *Lavendula latifolia*; but to which *J. Bauhine* gives the Name of *Pseudonardus*, and the French that of *Aspic*.

This Plant is commonly found in all Parts of *Provence*; and when it produces its Flowers, we put them, when almost dry, into a large Still, with a great deal of Water. After a Maceration for some Days, we distil the Whole, upon which there is carried along with the Water an Oil of a yellowish or amber Colour; and this is the *Oil of Aspic*, pure and unadulterated, as it ought to be. The Flowers of this Plant are to be chosen for this Purpose, rather than any other of its Parts, because they contain the largest Quantity of essential Oil; and indeed, upon strict Observation, we find, that the Cup of the Flower contains almost all the oily Parts of the Plant.

We must here observe, that aromatic Plants generally yield but a small Quantity of Oil; so that before the Oil can be distilled with small Expence, a large Quantity of the Flowers must be easily procured; which is the Reason that in *Provence* the essential *Oil of Aspic* is not only to be found in greater Abundance, but is also sold cheaper, than the Oil extracted from that Plant in most other Parts.

But notwithstanding the easiness of extracting the Oil in those Parts, where the Flowers are found in Abundance, yet the immense Quantity of it used, and the low Price paid for it, shew that we very rarely have it perfectly pure and unadulterated. There are several ways of adulterating this Oil, two of the least fraudulent of which I myself have discovered; one is by mixing it with Spirits of Wine, and the other by adding to it Oil of Turpentine. This Oil is for the most part imported to us from *Provence* and *Montpelier*; but as 'tis a great deal more employed in Painting, Enameling, and Varnishing, than in Physic, it does not so properly come under our present Consideration, *Mem. de l'Acad. 1715. by Mr. Geoffroy the younger.*

ASPIDION, *ἀσπίδιον*, a Diminutive of *ἀσπίς*, a Buckler. A Name for the *Alysson* of *Dioscorides*, because it has small round Pods resembling a Buckler. *Blancard.*

ASPIDISCOS, *ἀσπίδισκος*, from *ἀσπίς*, a Buckler, properly signifies a little Buckler, or the exterior Ornaments of Bucklers; but is apply'd by Metaphor to the Sphincter Muscle, as being in a manner the Ring of the Anus, as we are informed by *Cælius Aurelianus, Tard. Pass. Lib. 3. Cap. 3.*

ASPIS, *ἀσπίς*. The Asp, a very poisonous Serpent, of which *Galen, Lib. 1. de Theriac. ad Pison. C. 8.* makes three Species, the first called *χρησαία*, the second *χαλιδονία*, and the last *πλάς*, which is the most pernicious; for it extends its Neck, and suddenly spits its Venom upon a Person, as if it were endued with Reason to estimate the Distance. This is the Sort that is supposed to have bit Queen *Cleopatra* to Death; for after the Overthrow and Death of *Antony*, when *Augustus* had a Design to lead her away captive, to adorn his Triumph, she held out her Breast to one of these Serpents, and by its Bite received a very speedy Death. The Mark of this Bite is very small, like the Puncture of a Needle, without a Tumor, and but a small Quantity of Blood, though black in Colour, distils from the Wound. This is soon succeeded by a Dimness of Sight, and various Kinds of Pain in the Body, but very slight, and not without some Mixture of Pleasure. Wherefore *Nicander* had Reason to say, in his Verses, that it kills without Pain. The Colour changes to a Green and Herbaceous; there is a slight Gnawing at the Mouth of the Stomach; the Forehead has continual Spasms; the Eye-lids move involuntarily, as

at the Approach of Sleep ; and the Patient dies in less than the third Part of a Day.

The most ready and effectual Remedy is Amputation of the affected Part, if it be one of the Extremities, and may be done ; if not, let the circumjacent Flesh be speedily scarify'd, and cut away even to the Bone, that the Venom may not spread itself into the neighbouring Parts, and the rest are to be treated with Cauterics ; for the Poison of this Serpent, as well as that of the Basilisk, like Bulls Blood, very soon congeals the Blood and Spirits in the Arteries. *P. Aeginet. Lib. 5. Cap. 18.*

Emplastrum ex Aspidibus. A Plaister of Asps for strumous Swellings, and other Hardnesses, and for the Gout in the Intervals of the Paroxysms, you are taught how to prepare by *Aetius, Tetrab. 4. Serm. 3. Cap. 15.*

It is probable, that anointing the injured Part with common Oil of Olives by a warm Fire, would cure the Bite of the Asp, as it does that of the Viper. See ALEIPHA, and VIPERA.

ASPLENIUM, a Plant thus distinguish'd :

Asplenium Ceterach, Scolopendria, Offic. Asplenium, Scolopendrium, Ceterach, Chab. 556. Asplenium sive Ceterach, J. B. 3. 749. Ger. 978. Emac. 1140. Raii Hist. 1. 139. Synop. 45. Park. 1046. Hist. Oxon. 1. 561. Elem. Bot. 434. Tourn. Inst. 544. Ceterach officinarum, C. B. 354. SPLEEN-WORT or MILTWAST. Dale.

This is a small Plant, consisting only of Leaves, which spring from a fibrous Root. They are about three or four Inches long, hardly half an Inch broad, cut into small roundish Segments, which stand not opposite to one another, but alternately ; they are of a greenish Colour on the upper Side, and brownish, and full of dusty Seed underneath, generally crumpled, or folded inward, in Shape somewhat like the Insect *Scolopendra*, whence it takes one of the Names. It grows upon old Stone Walls and Buildings, especially in the West of England.

This is one of the five Capillary Plants, having its Name from its good Effects in curing Diseases of the Spleen, taking away the Swellings thereof, and hindering its too great Largeness, whence likewise it is called Miltwast ; it also opens Obstructions of the Liver, helps the Jaundice, and is very good for the Rickets in Children. *Miller's Bot. Off.*

Vitruvius gives an extraordinary Instance of the Effects of Asplenium in Crete, which is specify'd in the Extract from that Author under the Article AER.

ASPREDO *Cernua, Offic. Bellon. de Aquat. 291. Cernua fluviatilis, Gesn. de Aquat. 192. Charlt. Pisc. 39. Raii Ichth. 334. Ejusd. Synop. Pisc. 144. Mer. Pin. 190. Aspredo, Caius de Rar. Animal. 107. Aurata, Rondel. de Pisc. 1. 115. Perca fluviatilis minor, Aldrov. de Pisc. 624. Jonst. de Pisc. 108. THE RUFF.*

This Fish is common in many of our large Rivers. *Gesner* recommends a Bone found in the Head of this Fish, for the Stone in the Kidneys ; and for pungent Pains about the Ribs, and in other Parts. *Dale.*

ASPRELLA. A Name which *Blancard* gives to the *Equisetum majus*, on account of its Asperity ; for which it is used to polish Chests and Cupboards.

ASPRIS. A Tree, the same as the *ÆGILOPS*. which see.

ASSA-FŒTIDA. The same as ASA-FŒTIDA. See SILPHIUM.

ASSALA. A Nutmeg. *Ruland. Johnson.*

ASSALIAE, Worms that breed among Planks, otherwise called *Cossi, Teredones, Termes, Thripes, Xylophagi.* *Rulandus.*

ASSANEGI, ASANIRGI, ASARAGI. The Powder that falls off from the Walls of Salt in the Salt Mines. *Rulandus.*

ASSANUS. A Weight among the Antients, consisting of two Drams. *Galen. de Ponderibus et Mens.*

ASSATIO, ἄσσις, Assiation, is an artificial way of dressing Eatables, by means of an extrinsic and foreign Heat, which by its prevailing Force is effectual towards drying of the same. There are several Kinds or Modes of Assiation ; for either the Meat is moved near the Fire, or placed in a Vessel, with none, or but an insufficient Quantity of Moisture, and Fire put under it. To this Class belong fry'd Meats, whence Frying is a Species of Assiation. Hither also may we refer *Tostio, satureois*, Toasting. Roasted and fry'd Meats, according to *Galen, Lib. 3. Alim. Fac. Cap. 2.* afford drier Aliment to the Body. The first in Greek are called ἄσσις, the other *τρυγανισμός.* *Scribonius Largus* mentions *Ova assa*, N^o 221. *Assare*, in the Spagirical Language, is to dry a Thing, and put it in such a State, as to be reducible to Powder ; and sometimes it is the same as to congeal. What is all red-hot both within and without, undergoes a wrong Assiation. *Assare*, by way of Allegory, is called the seventh Regimen, which is that of the Moon, whose Office it is to heat and compose for the Space of twenty-five Days, and this is called the Silver Regimen. Lastly, Assiation, in the Magistry of the Philosophers Stone, is a sweet and gentle Desiccation of Bodies dissolved and separated from their Menstruums by a small Fire decreasing towards the End, which sweet Desiccation is a Calcination. *Castellus.*

ASSATURA is the Animal or Piece of Meat but just removed from the Fire after Assiation, and wrapped in a Cloth. They are called *Assaturæ suffocatae*, by *Santes Ardoynus*, and reckon'd among Poisons. *Castellus.*

ASSERAC, the same as *Assis*, is a Species of *Bangué*, which is the *Assis* of the Egyptians, and differs from the Opium and Maslac of the Turks. *Castellus.*

ASSERVATIO, or CONSERVATIO, in Pharmaceutics, is repositing such Collections of Simples as are necessary for Use in proper Vessels and Places, that they may be always in Readiness. *Castellus.*

ASSIDENS *Signum, συμψεύζει*, an assident Sign, or Symptom, that is, such a one as usually accompanies a Disease. It differs, however, from the *Pathognomonic* in this, that this last is inseparable from the Distemper, as being essential to it ; but the other not so, *Gal. 3. in 3. Epid. C. 34.* For Illustration, let the Pleurisy be an Example, in which an acute Fever, a Difficulty of Respiration, Cough, and pungent Pain of the Side, are pathognomonic Symptoms ; but that the Pain should extend to the Hypochondrium, or Clavicle, or that the Patient should find more Ease in lying upon the affected Side than upon the other, are no more than *assident* Symptoms. *Castellus.*

ASSIDUUS is used by some instead of *continuus* ; thus with them *assidua Febris* is the same as *continua Febris*, and is opposed to *intermittens*. *Castellus.*

ASSIMILATIO, ἐξομοίωσις, ἐμύωσις, an Assimilation. It is the Action by which the Supply of Nourishment is alter'd and assimilated to the Part nourished, *Galen. 3. de Fac. Nat. Cap. 1.* In order to this there must be first an *Appositis*, προσθεσις, an Apposition ; and then an *Agglutinatio*, or *Adherentia*, προσζυσις, an Agglutination, or Adhesion, *Lib. 1. de F. N. C. 11.* It differs only in Name from Nutrition, *Lib. 3. de Caus. Sympt. C. 2.*

ASSIS is either the same with Opium, or Meconium ; or else it is a Powder prepared of Hemp-leaves, of which, being mixed with Water, the Egyptians take five or more Boluses of the Bigness of a Chestnut, which throws them into a drunken Ecstasy for an Hour, during which they delight themselves with imaginary Scenes. *Prosp. Alpinius de Medic. Aegypt. Lib. 4. Cap. 2.* The Turks also call it *Asserac*. See BANQUE.

ASSISTENTES, or *Assites glandulosi*. The same as PARASTATÆ, which see.

ASSITRA. A Tree in the East-Indies, the same as MANDARU, which see. *Raii Hist. Plant. 1751.*

ASSIUS LAPIS, ἄσσιος λίθος, Diosc.

Lapis Assius, Offic. Matth. 1380. Aldrov. Mus. Metall. 692. Assius vel Assius Lapis, quem etiam Sarcophagum vocant, Worm. Aq. Charlt. Foss. 21. Sarcophagus, sive Assius Lapis, De Laet. 133. Sarcophagus, & Assius seu Assius Lapis, Boet. 403. ASSIAN STONES. Dale.

This is so called from Ἄσσις, a City of Treas in the Lesser Asia, where it was found. The Assian Stone is of a tophous, soft, friable, and loose Substance. Something grows upon it like very fine Meal, such as we see sticking upon the Walls of Mills. They call it the *Flower of the Assian Rock*. It is of subtle Parts, and consumes Flesh that is too soft and fluid by Colliquation without Mordacity. The Stone on which it grows has the same Virtue, but weaker ; for the Flower is not only colliquative, digestive, and preservative like Salt, but performs all this without any remarkably corrosive Quality. It has somewhat of Saltiness to the Taste, which makes it conjectur'd to be a Dew arising from the Sea, which is condensed by the Rock, and dry'd by the Sun. *Galen de Simp. Med. Fac. Lib. 9.*

The Assian Stone, says *Dioscorides*, ought to be of the Colour of the Pumice-stone, spongy, and light, and also friable, with intercurrent yellow Veins from the Top to the Bottom. Its Flower is a yellowish and saltish Substance, on the Surface of the Stone, of a thin Contexture, some white ; some of the Colour of the Pumice-stone, inclining to yellow ; it tastes somewhat biting upon the Tongue.

Both the Stone and the Flower have an astringent and gently colliquative Virtue, and, being mixed with Resin of Turpentine or Tar, dissolves Tubercles ; but the Flower is esteem'd most effectual, and is, indeed, when dry'd, an extraordinary Remedy for inveterate Ulcers, which are difficult to be cicatrized, and represses carnosus Excrescences. Mixed with Honey it absterges foul and virulent Ulcers ; it deterges also and incarns Ulcers which are hollow, and mixed with Cerate restrains the spreading Kind. It is made into a Cataplasm with Benn-meal for the Gout, and for splenetic Disorders with Vinegar and Quick-lime. The Flower made into an Eclegma with Honey is good in a Phthisis. Vessels are made of the Stone, in which gouty Persons put their Feet when they bathe, and find Relief thereby. Cossins are made of the same, for the speedy Consumption of dead Bodies ; and Persons of a very fleshy and gross Habit are extenuated by sprinkling the Flower instead of Nitre in their Baths. If any one thinks fit to wash the

the Stone or Flower, he must do it as he washes *Cadmia*. *Dioscorides*, *Lib. 5. Cap. 142.*

About *Affos*, a City of *Troas*, grows a Stone which consumes all Bodies; they call it *Sarcophagus* [from *σάρξ*, Flesh, and *φάγω*, to devour]. *Pliny*, *Lib. 2. Cap. 96.* Dead Bodies interred in it are found to be consumed within forty Days, Bones and all, except the Teeth. *Idem*, *Lib. 36. Cap. 17.*

ASSOS, Alum. *Rulandus.*

ASSUETUDO, the same as CONSUETUDO.

ASSUMTIO, *πρόσληψις, προσέγγεισι*, a Reception. The Word is apply'd to every thing, whether Aliment or Medicine, which is communicated by the Mouth to the Body, not excepting Air itself. *Castellus.*

ASTACUS, *Offic. Gefn. de Aquat. 91. Rondel. de Aquat. 1. 538. Aflacus verus*, Aldrov. *Exang. 112. Aflacus marinus communis*, *Jonf. Exang. 13. Aflacus marinus*, *Mer. Pin. 141. Charlt. Exer. 55. Schonel. Ichth. 23. THE LOBSTER. Dale.*

This Fish is too well known to require a Description. The Shell calcin'd, and drank in Wine, is said to break and carry off stony Concretions in the Kidneys; and it is likely enough to have some Effect in such Cases, because the Shells of Fish calcin'd are a sort of Lime, and the Salts of Lime are the grand Dissolvents of stony Concretions. It is now well known, that whatever good Effects Mrs. *Stevens's* Medicine for the Stone may have, are owing to the Salts of Lime.

Lobsters as a Food are highly calefcent, and of consequence must be very proper Food, when an acid Acrimony prevails in the Stomach, and general Habit; but the contrary in case of a Tendency to an alkaline Putrefaction. They are esteem'd very nourishing, and good in a Consumption. See ALIMENTA.

ASTACUS FLUVIATILIS, *Offic. Rondel. de Pisc. 2. 210. Schonel. Ichth. 20. Gefn. Aquat. 104. Mer. Pin. 192. Charlt. Exer. 56. Aldrov. de Exang. 129. Jonf. Exang. 15. Cammarus*, *Bellon. de Pisc. 355. Cancer*, *Schrod. 5. 325. The CRABFISH, or CREVIS.*

They are found in Rivers, and the Parts of them used in Pharmacy are, the *Flsh*, and what we call the *Lapilli*, or *Oculi Cancrorum*, known by the Name of *Crab's-eyes*. In their Head, according to some, or rather in their Stomach, are found two white Stones, as large as a Pea, of a kind of lenticular or orbicular Form, but compress'd, and somewhat hollow on one Side, whereas the other is convex, and dispos'd in *Lamine*. These Stones are of an earthy Taste. We frequently meet with a counterfeit Species of this Commodity prepar'd of a whitish Earth, and made up in the same Form; but this fictitious Kind is easily distinguished by breaking them, since they want those *Lamine* which are always found in the convex Part of natural and genuine Crabs-eyes. The Flesh of this Animal is cooling, moistening, and adapted to nourish such as labour under Atrophies. The Stones or Eyes are cooling, drying, abstergent, and discentient; they resolve tartarous Concretions, and coagulated Blood, and are possess'd of a lithontriptic Quality; for which Reason they are often prescrib'd in nephritic Pains, Pleurifies, Asthmas, and Colics; they are also proper for cleansing the Teeth. The Shell is possess'd of the same Virtues with the Stones, and is besides of Service in curing such Itches in Children as arise from saline Humours, and in carrying off the Paroxysms of intermittent Fevers. *Schrod.*

ASTAPHIS, *ἀσάπις*, in the *Attic* Dialect, for *ἀσπίς*, a Raisin.

ASTARZOF. The Name of an Ointment in *Paracelsus*, consisting of one Ounce of Litharge wash'd, one Ounce and a half of Spemniola, with three Ounces each of the Juices of House-leek, and Water-lily. He gives also the same Name to a Mixture of two Ounces of Rose-water with an Ounce of Camphire. These he uses in the Cure of a *Formica*. *Paracelsi de Apostem. Cap. 38.*

ASTICHACHILLOS is a Name given by *Paracelsus* to a malignant gangrenous Ulcer, which begins at the Juncures of the Feet, and ascends up the Legs to the Knees. When there is a Redness, he says, above the Juncures at the Root of the Heel, and the Ulceration occupies a large Surface, making its way by many little Ulcers up the Leg towards the Knee, you may venture to say there will be an *Astichachilos*, which I also call *Aranus*. *Id. ibid. Cap. 18.*

ASTEION, *ἀστειον*, from *ἄστυ*, a City, in the same Sense as *Urbanus* comes from *Urbs*. Good, laudable, civil, polite, In *Hippoc. Lib. de Alim. ἀστειον* is oppos'd to *βλαβηρον*, hurtful; and soon after to *φλαυρον*, bad, corrupt. In *Hipp. Epist. ad Democ. περὶ ἰατρικῆς*, ἀστειοὶ τὰ σώματα are such as enjoy a good State of Body. *Ἀστειον*, in the same Author, signifies civil, polite, laudable, and is commonly oppos'd to *ἀγρον*, rude, barbarous, malignant. *Ἀστειον*, according to *Parinus*, signifies τὸ χαριεὲς καὶ τὸ δεικνύν, καὶ θαυμάσιον ἄξιον, θαυμάσιον, σπουδαῖον καὶ ἀδίστητον, "graceful and handsome, worthy of Admiration, honourable, just, and venerable."

ASTERES THALATTII, *ἀστῆρες θαλάττιοι*, (from *θάλασσα*, or *θάλασσα*, the Sea, Star-fish) are prescribed, together with Cabbage and scented Wine, by *Hippocrates*, *Lib. 2. περὶ*

γυναικ. in the Hysterical Passion; and for Hysterical Pains, *Lib. περὶ γυναικ. πυσ.*

The *Stella Marina* is very small in Bulk; its Inside is Flesh, but its Outside a pretty hard Callus. They say it is of so fiery a Nature, that it scorches every thing it touches, and digests all its Food in an Instant. *Plin. Lib. 9. Cap. 60.*

ASTERGES, *ἀστεργής*, from *ἀ* Neg. and *εργω*, properly, to love with a natural Affection. Inhuman, unnatural, severe; in *Hippoc. περὶ ἀδένων*, it signifies hard, dense, compact, and is oppos'd to *ἀερίος, μαλακός*, rare, soft; as τὸ ὃ ἀρσεν ἐκ ἀντιπερὶ ἀέριος, πυκνὸν τε ἐὶν καὶ ἀστεργής. "But the Male does not receive any [Moisture] being dense and compact."

ASTER ATTICUS, *Ἀστὴρ Ἀττικὸς*, *Dioscorides Inguinalis. After Atticus, Offic. After Atticus, Ger. 392. Emac. 486. Raii Hist. 1. 338. After Atticus luteus verus*, *Park. 128. After luteus, foliis ad florem rigidis*, *C. B. 266. Chrysanthemum conyzoides, foliis circa florem rigidis*, *Hist. Oxon. 3. 18. Chrysanthemum Asteris facie, foliis ad florem rigidis*, *Herm. Cat. Asteriscus annuus foliis ad florem rigidis*, *El. Bot. 398. Tourn. Inst. 497. Boerh. Ind. A. 164. Aët. Reg. Par. An. 1710. 382. GOLDEN STARWORT. Dale.*

The *After Atticus* [by some called *Bubonium*, *Oribasius*] is a ligneous Stalk, which has a purple or yellow Flower on its Top, divided round about, like that of Chamomile, with radiated Leaves like a Star. The Leaves about the Stalk are oblong and hairy.

Made into a Cataplasim it is effectually apply'd in hot Disorders of the Stomach, Inflammations of the Eyes, Buboës, and falling down of the Anus. They say that the purple Part of the Flower drank in Water cures the Quinsey, and frees Children from the Epilepsy; and being apply'd while it is yet moist and recent, by way of Cataplasim, is proper for inflammatory Buboës. If the Flower, when it is dry, be cropt by the Left Hand of the Patient, and ty'd about the Bubo, it takes off the Pain. *Dioscor. Lib. 2. Cap. 120.*

After by some is called *Bubonium*, because it is a present Remedy for a Bubo. It also relieves the *Sciatica*, being ty'd on the Part. *Pliny, Lib. 27. Cap. 5.*

After is also the Name of a Medicine invented by *Andromachus*, against Distillations, and various Sorts of Pains. *Gal. de Comp. Med. Sec. Loc. Lib. 7. Cap. 5.*

The lower Leaves of this *After* are about four or five Inches long, and about an Inch broad at the End, which is round-pointed, and growing narrower towards the Root; the Stalk is downy and hairy, about a Foot and a half high, with the like Leaves, but smaller, set on it without Order: Toward the Top it is divided into three or four Branches, at the End of which grows a yellow Flower like a Marigold, but with a broader Thrum, and narrower Petala: Close under each Flower grow six or seven stiff roundish Leaves, in form of a Star, whence it takes its Name; the Seed is oblong, thin, and flat; of a blackish Colour: The Root is small and fibrous, perishing every Year. It grows in *Italy, Spain*, and the Southern Parts of *France*, and also in *Greece*. *Millar's Bot. Off.*

This Plant is found in the Gardens of Botanists, and flowers in *May*. Its Leaves are only used, which are of a vulnerary Nature, tho' rarely prescribed in Practice. The Leaves and the Herb itself are of Service in preternatural Commotions and Heats of the Stomach, Inflammations of the Eyes, the falling down of the Fundament, and Tumors in the Groins. The Water distill'd from its Flowers, if drunk, is of Service in Quinsies, and the epileptic Fits of Children. *Dale.*

There are several other Plants called by the Name of *After*, which are Species of *CONYZA*, which see.

The *Helenium*, or *Enula Campana*, is also call'd *ASTER OMNIUM MAXIMUM*.

ASTERIA GEMMA, *Offic. Asteria, aut Solis Gemma*, *Boet. 226. The BASTARD OPAL, or STAR-GEM. Dale.*

This Gem is transparent like Crystal, but of a harder Nature. 'Tis thought to be a Species of the *Opal*, but neither the one nor the other are now kept in the Shops. If carried about with one, 'tis thought to procure Sleep, and prevent frightful Dreams. *Boet.*

ASTERIAS, *ἀστῆρας, ἀστῆρος, ἀστῆρος, ἀστῆρος*, from *ἀστὴρ*, a Star. The same as *ASTROITES*, which see.

ASTERION. The same, according to *Blancard*, as *ASTER* before.

ASTERISCUS, of *After*, or Starwort, which it is very like, except that the Seeds are not papous, but chanell'd. *YELLOW STARWORT.*

The Cup of the Flower is stellated with little Leaves, which are extended beyond the Petals of the Flower in Length.

This Plant having no *English* Name, I have call'd it *YELLOW STARWORT*, altho' it is very different in its Character from that Plant; the Seeds of this being plain, and for the most part border'd round the Edges, having no Down adhering to them, and the Flowers being surrounded with a foliaceous Calyx.

There

There are several Species of this Plant cultivated in curious Botanic Gardens; but in *England* we have but three Sorts, which are preserved for their Beauty.

1. *Asteriscus annuus, foliis ad florem rigidis*, Tourn. THE ANNUAL ASTERISCUS, WITH STIFF LEAVES AND FLOWERS.

2. *Asteriscus annuus Lusitanicus odoratus*, Boerh. THE PORTUGAL SWEET-SMELLING ANNUAL ASTERISCUS.

3. *Asteriscus maritimus perennis patulus*, Tourn. THE MARITIME PERENNIAL DWARF ASTERISCUS. *Miller's Dictionary*.

ASTERITES. A Flint Stone to strike Fire with. *Ru-landus*.

ASTEROIDES. BASTARD STARWORT.

The Characters are;

It hath a compound radiated Flower, whose Disk is composed of many Florets which are Hermaphrodite, and of Semiflorets which are Female, and rest upon the Embryos, which are all included in a scaly Empalement. These Embryos afterwards become Seed, for the most part oblong.

The Species are;

1. *Asteroides Alpina, foliis folio*, Tourn. Cor. BASTARD STARWORT OF THE ALPS, WITH A WILLOW-LEAF.

2. *Asteroides orientalis, petasitidis folio, flore maximo*, Tourn. Cor. ORIENTAL BASTARD STARWORT, WITH A BUTTER-BUR-LEAF, AND A LARGE FLOWER.

3. *Asteroides Americana minor annua*, Vaill. LESSER AMERICAN BASTARD ANNUAL STARWORT. *Miller's Suppl.*

ASTHENES, ἀσθενής, from *a* Neg. and εἶναι, Strength. Weak, infirm. The Difference between ἀσθενής and ἀδυνατός lies in this, that the former signifies one weak by Nature, and prone to Sickness, but the other denotes a Person actually sick. *Hip. Lib. πρὸς ἀρχ. ιαλ. ἐνύκτατα ὅτι ἀδυνατός ἐστιν ὁ ἀσθενής, καὶ ὁ ἀσθενής ἐστὶν ὁ ἀδυνατός*. "The weak Person is next to the sick, but the sick Person is the weaker." *Ασθενής* is also apply'd to διαίτα, *Lib. 6. Epid. Aph. 16. Sect. 4.* which must mean, according to *Galen*, a weak or low Regimen of Diet, or such as renders a Person weak. By a weak Diet also may be understood such as yields but little Nutriment. So *Lib. 6. Epid. Sect. 5. Aph. 20. τὰ ἀδυνάτα ὅτι αἰτία* are such Food as nourish little; and so *Galen* explains the Place, as on the contrary strong Food is such as contains much Nourishment. In the same Sense must we take ἀδυνάτου πρὸς τὴν ψυχὴν, *Lib. de Rat. Viſ. in Morb. acut.* very weak Ptisan, for such as affords but very little Nutriment; or, as *Galen* expounds it, ὅτι ἀδυνάτου αὐτῆς, ἡτοι δὲ τὸ βραχὺ τὸν τροφὸν τῷ σώματι δίδωσιν, ἀκυστόν ἐστιν, ἢ οὐκ αὖτις ποσὶν μὲν ἐχέει σφοδρῶς, ὡς ἡτοι ἡνὶ ῥέον ἢ ὅτι γνῶμις ἀπιδεῖα, καὶ ἀπὸ τοῦ ὅτι τε καὶ ὅτι. "By its Weakness we are to understand, either that it affords but slender Nourishment to the Body, or that it possesses no vehement Quality, by which it may offend the Nerves, or subvert the Reason, as Vinegar or Wine."

ASTHMA, see DYSPNOEA.

ASTITES. The same as PARASTATÆ, which see.

ASTOMOS, ἀστόμος, from *a* Neg. and στόμα, a Mouth. Without a Mouth. This can be apply'd to nothing but Monsters. For the Fable of *Pliny*, which gives an Account of an *Indian* People who live by Exhalations only, and have no Mouths, is utterly extravagant and puerile.

ASTRABES, ἀστράβες, from *a* Neg. and στραβός, distorted, undistorted. *Αἱ γίνες ἀστράβες*, the Jaws undistorted. *Hippocrates de Articulis*.

ASTRAGALOIDES, BASTARD MILK-VETCH.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterwards becomes a Pod, shaped almost like a Boat, and full of Kidney-shap'd Seeds.

We have but one Sort of this Plant, which is;

Astragaloides Lusitana, Infl. R. H. PORTUGAL BASTARD MILK-VETCH. *Miller's Dict. Vol. 2.*

ASTRAGALUS. The Name of a Bone in the Foot, and of a Plant.

According to the natural Situation of the Foot, and its Connexion with the Leg, the *Astragalus* is the superior and first Bone of it. This Bone may be divided into two Portions, one large and posterior, which is, as it were, the Body of the Bone; and one small and anterior, which is an Apophysis, or the anterior Portion.

The Body or posterior Portion has four Sides, one superior, two lateral, and one inferior. The upper Side is the largest, cover'd all over with a Cartilage cylindrically convex from below backward, with a Depression running thro' the Middle of its Breadth, which represents half a Pulley, and is continuous with the two lateral cartilaginous Sides, of which the external is broader than the other. This upper Side is articulated with the lower Side of the Basis of the Tibia, the internal lateral Side with the inner Ankle, and the external lateral Side with

the outer Ankle. Below the internal lateral Side there is a great Depression without Cartilage, and several other Inequalities.

The lower Side is likewise cartilaginous and obliquely concave for its Articulation with the Os Calcis. At the very lowest and posterior Part of the Body of the *Astragalus*, on the Edge of the lower Side, is a small, oblique, smooth Notch or Channel for the Passage of Tendons.

The Apophysis or anterior Part of the *Astragalus* is distinguished from the Body by a small Depression on the upper Part, and on the lower, by a long, oblique, unequal Notch, very broad toward the Outside. The anterior Side of this Apophysis is all cartilaginous, and obliquely convex, for its Articulation with the Os Scaphoides. The lower Side, likewise cartilaginous, is parted in two, and articulated with the Os Calcis, being distinguished from the lower Side of the Body of the Bone by the long oblique Notch already mentioned. Besides these two cartilaginous Sides, there is a third below the anterior, towards the inner Part, which in the Skeleton touches nothing. *Winslow's Anatomy*.

ASTRAGALUS. The Plant called by this Name is thus distinguished:

Astragalus, Offic. *Astragalus Dioscoridis quibusdam*, J. B. 2. 341. Chab. 153. *Astragalus Dioscoridis, vulgo Christianæ radix*, Rauwolf. *An Astragalus Syriacus*, J. B. 2. 140. Ger. 1058. Emac. 1238. Park. Theat. 1085. *Astragalus Syriacus hirsutus*, C. B. Pin. 351. *Astragalus Syriacus, Onobrychis peregrina quibusdam*, Chab. 151. *Astragalus argenteus*, Wheel. Itin. THE SILK VETCH OF DIOSCORIDES.

The *Astragalus* is a small trailing Shrub, with Leaves and Branches like those of Chiches, and small purple Flowers. The Root is round, and of a good Size like a Radish, with solid, black, [*Pliny* says red] and very hard Appendices, which are entangled within one another like Horns, and of an astringent Taste. It grows in windy and shady Places, [in rocky and sunny Places, *Pliny*] and where much Snow falls. There is great Plenty of it at *Memphis* [*Pheneum*, according to *Pliny*, *Galen*, and *Oribasius*] in *Arcadia*.

The Root drank in Wine stops a Looseness, and provokes Urine; dry'd to a Powder, it is with good Effect sprinkled on old Ulcers, and stops Bleeding; but it is difficult to cut on account of its Solidity. *Dioscorides, Lib. 4. Cap. 62.*

Its Root is sweetish, astringent, and gives a deep Tincture of Red to the blue Paper; the Leaves give it hardly any; they are bitter, and smell like Elder, which shews that the fetid Oil is found in greater Quantity in the Leaves, and that it involves the acrid Salt and Earth. This Plant is not in Use; Nevertheless, a Night's Infusion of it in Wine is given with Success for Retention of Urine, and for the Gravel by some Herbarists at *Paris*. *Martyn's Tournefort*.

Dale observes, that the Description of the *Astragalus* in *Dioscorides* is so short and imperfect, that to this very Day it remains doubtful to what Plant it belongs, some ascribing it to one, some to another. But whatever others may think, says he, I chuse to refer it with *Rauwolf* to the above-mentioned.

ASTRANTIA. A Name for Masterwort. See IMPE-RATORIA.

But there is another Plant also called *Astrantia*, which is thus distinguished by Authors.

Astrantia nigra, Offic. Ger. 828. *Raii Hist. 1. 475. Astrantia*, Rivin. Irr. Pent. Buxb. 33. *Astrantia major*, Mor. Umb. 7. Elem. Bot. 263. Rupp. Flor. Jen. 226. *Astrantia nigra major*, Hist. Oxon. 3. 279. *Astrantia major, corona floris purpurascens*, Tourn. Infl. 314. Boerh. Ind. A. 73. *Astrantia nigra sive Veratrum nigrum Dioscoridis*, Ger. Emac. 978. *Helleborus niger, Sanicula folio, major*, C. B. Pin. 186. Park. Theat. 213. *Sanicula fœmina quibusdam, aliis Helleborus niger*, J. B. 3. 638. Chomel. 567. BLACK MASTERWORT.

This Plant is cultivated in the Gardens of Botanists, and flowers in July. Its black and fibrous Roots are only used. It is said to purge melancholic Humours; and *Dodonæus* thinks that it resembles the *Veratrum nigrum* of *Dioscorides*, both in its Form and Qualities. *Hildanus* prescribes it for the Cure of a scirrhus Spleen. *Dale*.

ASTRAPE, ἀστραπή, Lightning. It is reckon'd by *Galen* amongst the Procatartie Causes of an Epilepsy. *Castil.*

ASTRICTA. An Epithet very frequently apply'd to *Alvus*, the Belly: It implies Costiveness, and is oppos'd to *Soluta*, loose.

ASTRICTORIA. The same as ASTRINGENTIA.

ASTRINGENTIA. Astringents.

I shall here principally consider Astringent Remedies taken by the Mouth; for Astringent Topics come more properly under the Article *Styptica*.

Astringents are very proper to restore a Tone and Elasticity to the animal Fibres, when debilitated by Diseases, Intemperance, or Accident. But these are very seldom proper without a previous Attenuation of the Juices, and a Course of

Deobstruent Medicines ; because Obstructions are more firmly riveted, and the viscid Juices circulate with more Difficulty, when the Diameters of the Vessels are contracted by Astringents.

Among the several Classes of corroborative Medicines, that of *Astringents* is none of the least considerable and important. The several Substances which come under this Denomination are also by the *Latins* styl'd *Vulnerary*, and by the *Greeks* *Traumatic* Medicines. Their Virtues in general consist in a certain fix'd and gently constrictive Principle, by means of which they brace up the Parts and Fibres that are too much relaxed, corroborate those which are weakened, and consolidate and agglutinate such as are corroded and wounded. The principal Medicines belonging to this Class are, the Roots of Avena, Tormentil, Bistort, the greater Consoud, Cinquefoil, Plantain, and Rhapontic. The *Herbs* Periwinkle, Sanicle, Wintersgreen, the greater Consoud, Bugle, Saracens Consoud, Gooseberries, Agrimony, St. John's Wort, with its Flowers, Yarrow with its Tops, Horse-tail, Paul's Betony, Strawberries, Vervain, Mouse-ear, Tree Germander, all sorts of Plantain, Oak-leaves, Jerusalem Oak, Baum, Mint, Betony, and Lamium, or the Dead Nettle ; the *Flowers* of Roses and Balauflines ; the *Peruvian* Bark, that of Pomgranates, and of the Root of the *Egyptian* Thorn ; the *Juice* of the *Egyptian* Thorn, Japan Earth, Dragon's-blood, Hurtle-berries, and Quinces ; of *Spices*, the Nutmeg ; of *Mineral Substances*, the Bloodstone, Alum, and all Species of Earths and Marles ; of *Chymical Preparations*, the Chalybeate Flowers of Sal Ammoniac, and the Chalybeate Liquor prepar'd from the *Caput Mortuum* of the Chalybeate Flowers of that Salt ; of *Official Preparations*, the Traumatic Essence of *Wedelius*.

The several Substances now mention'd operate by means of a considerably fix'd terrestrial Principle, in Conjunction with an Acid : And as, by constricting the too much relax'd Fibres, they free them from a Congestion and Stagnation of Humours ; so, by bringing them into a nearer Contact with each other, they promote their Consolidation and Coalescence. But this constrictive Virtue is not equally strong and powerful in all the Substances we have mention'd ; for in the Tormentil-root, in the Bistort-root, and its Extraet, in the Balaufline-flowers, the Pomgranate-bark, the Oak-leaves, the Alum, the Chalybeate Liquor, the Juice and Bark of the *Egyptian* Thorn, the Quinces, and dry'd Hurtle-berries, this astringent Quality is much stronger than in what we commonly call the vulnerary Herbs, which consisting of a subtil, earthy, and alkaline Principle, intermix'd with Particles of a sulphureous, balsamic, and somewhat fix'd Nature, operate more safely and mildly, and are of singular Use and Advantage in the Practice of Physic. But that these *Vulneraries*, as well as the stronger and more powerful Astringents, contain a Principle of a subtil, dissolvable, and earthy Nature, is plain from this, that rich Infusions of them, upon the Admixture of Vitriol of Mars, or even of any Chalybeate Liquor whatever, become black, and assume an inky Colour, just as they would do by the Addition of Galls.

If Skill and uncommon Caution are requisite in the Use of any Medicines whatever, they are certainly so in the Administration of *Astringents* ; for since not only the Soundness of the Body in general, and of its several Parts, but also Life itself, is maintain'd and preserv'd by the perpetual, progressive, and circulatory Motion of sufficiently attenuated and fluid Humours thro' the Compages of the Body, which is almost quite vascular, and composed of inconceivably minute and slender Duets ; and since, at the same time, such are the Natures and Properties of *Astringents* as to inspissate our Fluids, when mix'd with them, and brace up the Pores and Duets of our Solids ; 'tis therefore obvious to every one, that Remedies of this Class must be unfriendly to the very Natures, and vital Motions, of animal Bodies ; for which Reason they are not so safe and secure as some may imagine, unless when used with the utmost Care and Circumspection : For daily Experience convinces us, that Medicines of an astringent Quality, rashly and unskillfully apply'd for stopping Hæmorrhages or Fluxes, produce numberless fatal Consequences, and generally bring on slow Fevers, Cachexies, ædematous Swellings, spasmodic Disorders, Colics, and hypochondriacal Indispositions : For this very Reason, we are carefully to guard against the imprudent and immoderate Use of the *Peruvian* Bark, for carrying off the Paroxysms of intermittent Fevers ; since by its violent Astringency the viscid, bilious, and salival *Sordes*, lodged in the *Primæ Viæ*, and which ought to be discharged, are so much the longer shut up and retain'd, by which means a still more formidable Disorder is sometimes brought on.

If Necessity should, at any time, call for the Use of Astringents of this Nature, they are not to be administer'd all at once, but successively in gentle Doses, and in Conjunction with a sufficient Quantity of some proper Liquid ; prescribing at the same time a due Degree of Exercise for the Patient, which I always do, when I either order the *Peruvian* Bark, or any Medicines whatever of the Chalybeate Kind.

'Tis highly unsafe and dangerous to repress excessive Vomit-

ings, Discharges of bloody Urine, Hæmorrhages of the Nose, Uterus, or Anus, and Spittings of Blood, by means of Astringents ; since the Patients are always sure to suffer by such a Practice, unless the Spasms, on which these Discharges of Blood for the most part depend, as much as Effects do upon their immediate Causes, are first sooth'd, the violent and impetuous Motions of the Fluids check'd, and the exorbitant and preternatural Affluence of Humours derived to other Parts.

The Traumatic or Vulnerary Herbs, and Decoctions of them, are of very singular and uncommon Service, not only in Wounds, Erosions, and Solutions of Continuity, but also in some Diseases of a chronical and violent Nature ; such as a Phthisis, Scurvy, Cachexy, and Disorders arising from the Stone, when these Indispositions draw their Origins from the Tone of the Viscera and Glands being weaken'd, or from a preternatural Stagnation of the Juices. But we ought, at all times, carefully to avoid using them in Cases where there is too great an Obstruction of the Vessels, a Constriction of the Fibres, or in a Phthisis, when the Lungs are full of hard Tumors and Tubercles. However, in other Cases, Infusions of vulnerary and gently astringent Medicines, are of singular Service, and produce excellent Effects ; especially in preventing fabulous and stony Concretions in the Kidneys, which, for the most part, arise from these Organs being too much relax'd or ulcerated. Upon this Subject I would recommend *Hencherus's Dissertation, concerning the Use of Astringents in the Stone*. This Intention is also very well answer'd by Infusions of Yarrow and its Tops, of Paul's Betony, Ground-ivy, Strawberries, Agrimony, and the Bark of the *Egyptian* Thorn-root. In involuntary Discharges of the Urine, arising from too great a Relaxation of the Sphincter Muscle of the Bladder, whether in Children or in Adults, I have found Infusions of this Nature produce very happy Effects ; applying externally, at the same time, rectify'd Spirits of Wine.

In Cases where the external Parts are hurt or wounded, well rectify'd Spirit of Wine proves, by itself, a noble and efficacious Vulnerary ; since it puts a speedy Stop to Defluxions of the Blood and Humours, and is of singular Service where the more sensible nervous and tendinous Parts have suffer'd by too great an Effusion of Blood ; for spirituous Liquors not only coagulate the Juices of the human Body, as we find by making the Experiment upon Blood and Lymph, but also, by removing the superfluous Humidity, render the Fibres tense and rigid, and, by bracing them more strongly up, prevent Stagnations of the Blood, and carry off Pains and Inflammations. Nor is the spirituous Water, call'd *L' Eau d' Arquebuse*, or *Aqua Sclopetaria*, used in our own Days, a despicable Vulnerary, since 'tis prepar'd, by Distillation in *Balneo Mariæ*, from some of the best vulnerary Herbs, and *Rhenish* Wine : But its Virtues and Efficacy are to be ascrib'd to the Spirit and the Wine, rather than to the Herbs, whose Virtues are lodged in a fix'd earthy Principle, which does not come over the Helm of the Still. *Hoffman*. Lemery directs the *Aqua Sclopetaria* to be made with *White Wine*. See *AQUA*.

The Simples commonly term'd *Astringents*, principally abound with rough, earthy, or saline Particles, and are of a heavy compact Texture, which, at first View, forbids them to be meddled with by Distillation. In Tincture likewise, with a spirituous Menstruum, they are very unsuitable ; because their superior Gravities and Bulks will not suffer them to unite with, and be suspended in, such Liquors.

In Decoction, indeed, many *Astringents* may be retain'd with Efficacy, especially those of a saline and styptic Nature, as Alum, Galls, and Oak-bark ; but few others can be thus order'd to Advantage, because they are too heavy for Suspension in an aqueous Fluid.

There is somewhat, 'tis true, peculiar in the *Peruvian* Bark, that fits it for this Management, beyond any other Simple of the same Class : Its Particles are so very fine and light, when broken in the Mortar, that a great deal would be lost, were it not for a Mixture of somewhat moist and only to keep it from flying away, which is commonly practis'd with Almonds, or somewhat of a like Nature ; but this is certainly prejudicial to the medicinal Intention of this Drug. But in Decoction, with an aqueous Vehicle, this finer Part is not only saved, but likewise all that is most subtil therein is suspended in the Liquor, the grosser Parts only falling to the Bottom, as is very manifest from the Thickness of such Decoctions. So that, in ordering of this by Decoction, there is only obtain'd the finest of its Substance, which cannot be procur'd any other way ; a thing very different from what is commonly expected by this Process ; for here the Ingredient is in some measure dissolved, and intimately united with the Liquor. Doubtless, in the Management of this Drug by Decoction, somewhat more is obtain'd than can be got by simple Tincture, especially where such Ingredients are added, that, by boiling, give a thicker Consistence to the Water ; because then a much greater Quantity of the Bark will remain suspended therein. Thus, some order a small Portion of Storax or Benjamin to be boil'd herewith, which not only enables the Liquor to hold up more of the Bark, but

but gives also thereunto such a Warmth and Scent, as is very grateful to a Stomach weaken'd and pall'd by a Fever and Medicines.

The usual Distrust therefore of the Bark, in this Form, is ill-grounded, because it depends upon a Supposition, that it is not this way given in Substance; whereas it is not only thus given in Substance, but also with greater Advantages than can by any other means be come at. For when it is given in the finest Powder that can possibly be obtain'd from the Mortar and Sieve, it is yet too coarse for a weaken'd Constitution, and therefore frequently, by its Stimulus, brings on a Diarrhoea; whereas this way it is too fine to give any such Disturbance in the first Passages, and not only strains, by the common Course of Circulation, much farther, but gives a more uniform and general Contraction to the debilitated and relax'd Fibres. Those who try it this way also, seldom find so many Relapses as are customary, after some Days, with the coarser Powder.

A very considerable Addition may be made to the medicinal Virtues of most of this Class in Decoction, by a Mixture of Acids, because they greatly improve any astringent or styptic Quality; and whosoever tries this, with the Bark in particular, will experience its Success in most Intentions for which it is ever used, but especially in that of a Styptic in Hæmorrhages; in which Case also an Addition of red Roses, at the latter End of the Decoction, is not only of Service, but also helps agreeably to disguise the Medicine.

One Caution ought by no means to be here omitted, concerning this Form, with the Simples of this Class. It is a very common way, in the Shops, to clarify their Decoctions with the White of an Egg, to render them more beautiful to the Eye; but where their Virtues are expected from any thing glutinous, gross, or earthy, such Procedure quite destroys the Intention, because those Parts are entangled with the Egg, and rise up with it in the Scum; and for this Reason it is, that almost all Syrups made from Decoctions are good for nothing, because in their Clarifications they are robb'd of their Virtues.

There are, indeed, some Official Syrups from Materials of this Division, as the Syrup of Mint, that of Myrtles, and some few others; but the Neglect they are under in common Practice, shews what Service is to be had from them: They may, perhaps, serve as weak Auxiliaries, to things of more Efficacy, in sweetening them, or reducing them into some convenient Forms, as Boles, Electuaries, or the like; but no further are they to be trusted.

In extemporaneous Electuaries likewise, things of this Texture are very suitable, and some, which require but small Quantities for a Dose, come well enough in Pills; but they are contrived into Official Electuaries with great Disadvantage, because of their long Continuance in a moist Form; and more especially with Honey or Syrups, which are much inclin'd to ferment; and this subjects them to such Changes as quite destroy their medicinal Virtues; for that Hardness or Rigidity, wherein their Astringency consists, softens, and, as it were, rots, with continual Moisture. Thus the Confection of *Fraxinarius*, which is a Composition wholly selected out of this Class, grows extremely bad by Age, and will in time change from a warm, rough Astringency, into an almost tasteless, soft, slippery Mixture. This Alteration, indeed, is much hasten'd by the *Cassa Ligna*, and *Cum Arabic*. For this Reason many Shops preserve the Species for this Electuary dry; as also those for the Confection of Hyacinth, tho' the College have now thought fit to reject the latter Composition. All the Simples, therefore, of this Denomination, are with the greatest Advantage kept in dry Powders, for extemporaneous Occasions. *Quincy's Prælect. Pharmacent.*

ASTRION, ἀστειον. The same as ASTRAGALUS.

ASTROBLES, ἀστροβλησις, or ἀστροβλησις, from ἀστρον, a Star, and βάλω, to strike. Planet-struck, blasted. This is properly spoken of Plants; but is sometimes apply'd to human Bodies, and then signifies *Apoplectic*, and sometimes *Sphacelated*. Hence,

ASTROBOLISMOS, ἀστροβολισμός, Sideration, or Blasting of Trees. But this is also sometimes apply'd to the Body, as in Sphacelations and Apoplexies.

ASTROCYNOLOGIA, from ἀστρον, a Star, κυων, a Dog, and λόγος, a Dissertation, or Treatise. The Name of a Treatise written on the Subject of the Dog-days.

ASTROITES, seu *stellaris lapis*, Offic. Cod. Med. 16. *Astroites primus*, Boet. 298. *Astroites quartus*, Plot. Hist. Nat. Ox. p. 88. Tab. 2. Fig. 7. Lithog. Brit. N^o. 163. Charlt. Foss. 28. Worm. 67. Schw. 366. Mer. Pin. 211. *Stellaris lapis*, De Laet. 97. Aldrov. Mus. Metall. 872. *Stellaris lapis primus*, Gesn. de Lap. 35. STAR-STONE.

This Stone is porous, moderately hard, and white, and as big sometimes as a Man's Head. It is found in some Quarries in England and Germany. It is esteem'd antipestilential, and is said to destroy Worms in Children.

ASTROLOGIA, from ἀστρον, a Star, and λόγος, a Word. Astrology. See ASTRONOMIA.

ASTRONOMIA, from ἀστρον, a Star, and νόμος, Law; Astronomy.

No Part of natural Knowledge has more employ'd the Thoughts of the Learned, than the Influence of the Stars upon human Bodies; and, indeed, no one, who has but a moderate Acquaintance with polite Learning, can be ignorant of the Disputes and Controversies started on this Subject by the Physicians and Philosophers of our own Age. Some deny and explode an Influx of the Stars altogether; but at the same time admit and patronize the Influence and Efficacy of the Sun upon terrestrial Bodies. They who embrace this Opinion, assert, that the Planets and fix'd Stars are removed at such an immense Distance from our Globe, that the very Light they diffuse can have no Influence upon it, much less that they themselves can produce any Effects upon such Bodies as are contain'd in it. The Sun, on the other hand, is, according to them, the only Body whose benign Influence extends to our Earth, and whose kindly Warmth rears up the vast Variety of Plants, and cherishes the several Species of Animals, with which it abounds; for they will by no means allow, that the Planets produce any sensible or manifest Effects upon any Parts of this our Habitation. But tho' I absolutely deny, that the Fates, the Morals, and the Fortunes of Men depend upon the Stars alone, I nevertheless affirm, that these have a very surprising and remarkable Influence upon the several Bodies on our Earth. This Opinion has been embraced by many of the Moderns, but more especially by the *Literati of England*, whose Industry, in clearing up this Point, deserves to be crown'd with all the Encomiums that are due to profound Learning, and a disinterested Love of Truth; for these Gentlemen have, with a great deal of Judgment, maintain'd the Influence of the Stars, not only with regard to the Phenomena of *Astres*, but also with regard to the human Body, consider'd as subject to Diseases and Disorders. Nor, indeed, could this Doctrine be unknown to the Antients; who ascrib'd a great deal to the Stars, and even carried the Point so far, as to deduce the immediate Causes of the several Accidents and Revolutions of Life from them. In short, they were so prepossess'd in Favour of this Notion, that they accounted for Health and Diseases, the Tempers and Dispositions of Men, and, which is still more, the Fates of Kingdoms, and the Origins of Wars, from the Influences of the heavenly Bodies. As this is the Case, it must be a Task no less curious and pleasant, than useful and profitable, to inquire, whether there really is such an Influx of the Stars upon terrestrial Bodies, how far it extends, and what Notions Truth and Fact will authorize us to entertain concerning it; and this is what I at present design.

Astronomy, then, or a Knowledge of the Stars, has all along, even from the earliest Ages, been highly esteem'd, and had in the greatest Honour. It is at first said to have been invented by the *Egyptians*, and by them transmitted to other Nations, where it met with a favourable Reception, and many zealous Votaries. And, indeed, the Reasons are plain why the earlier Ages paid such an uncommon Veneration to this Science, since they were sufficiently apprised of the numberless Advantages which accrue to Mankind from the Stars and heavenly Bodies: For Astronomy acquaints us with the various, but still regular, Courses of different Stars, and discovers their Positions, Motions, and Conjunctions; which are not only glaring Instances of the amazing Grandeur and Extent of the universal System, but also irrefragable Proofs of the Skill and Wisdom of its adorable Author. Besides, all sublunary Bodies partake of the benign Influence of the Stars, which by their genial Rays diffuse a certain Life and Vigour to them. By observing the Stars we are enabled to discover the Situations of different Seas and Countries, to ascertain the Distances of Places, and measure out Time into the several Divisions of Years, Months, and Days. By means of the heavenly Bodies timorous Mortals were taught to despise the Fury of the Waves; and the daring *Phœnicians*, trusting to their Skill in *Astronomy*, first ventur'd to sail upon the Main, and trust their Lives to Ships, render'd less dangerous by their Knowledge of this Science. By this we are also enabled not only to account for, but also to foretel and calculate the several Eclipses of the Sun and Moon, with the greatest Exactness and Precision. 'Tis not therefore to be doubted, but the different Situations and Positions of the Stars vary the State of the Weather, and the Seasons of the Year, and consequently induce various Changes both upon Vegetables and Animals. For this very Reason, 'tis necessary every Physician should be acquainted with *Astronomy*, that he may be enabled to account for epidemical Distempers: But let it be remember'd, that, when I require *Astronomy* in a Physician, I do not mean that Mock-science below all Regard, which, with a great deal of *superstitious Solemnity*, and no Truth at all, predicts the Fortunes, the Distempers, and the Deaths of People, by drawing what we call their *Horoscope*, or inquiring into the Positions and Aspects of the Stars at the Hour of their Nativity. Those trifling Mortals, who apply their Minds to this diminutive Study, lose their Labour in an egregious manner; since they cultivate and adore a *Science*, (pardon the Name)

Nature) which has neither *speculative Truth*, nor *Use in human Life*, to recommend it. They might indeed, with my Leave, reverence it as highly as they would, provided the Dignity of genuine and real *Astronomy* was not brought into Disgrace by their Folly and Impertinence: But I find myself animated with a just Indignation, when I reflect, that this *predicting Art* has, in some measure, deprived *Astronomy* of that Esteem and Veneration which were once so justly paid it. I frankly own, that the Stars, considered as remote Causes, may contribute somewhat even in Things of this Nature; but I can never, at the same time, admit, that any such Occurrences can possibly be predicted from them alone: For this Reason many of the Antients not only mentioned this Practice as an Abuse, but severely censured it as such. Of these the most noted is *Albertus*, who, considering the Time in which he liv'd, is deservedly esteemed a great Man. This Author, in his Book *de Mineral. Tract. 3. C. 3.* has these Words, "Many," says he, "who pretend to foretel Things from the Stars, are often found to be wrong in their Predictions; and by their Lyes bring *Astronomy*, which is a valuable and useful Science, into Contempt and Disgrace." *Averrhoes* is of the same Opinion; for in the *Cantica Avicennæ* he uses these Words: "The Art of Astrology is ill founded, and its Principles are for the most part false." *Apollonius* also is, by *Philostratus*, represented as giving his Suffrage in our Favour. "As for my Share," says he, "I think the Power of predicting Events from the Stars, and the Art of Divination in general, are Things placed beyond the Reach of the human Faculties; neither do I know, that any Mortal is a real Master of them." No less intolerable is the Insolence of those who distinguish Days into *lucky* and *unlucky*; and with that View compose annual Calendars. These infallible Prophets, with a happy Clause of Reservation, which bears, *If God please*, pronounce like so many Oracles, that such and such Days shall be lucky, and such and such others the Reverse; and what crowns the Farce is, that their Knowledge and Skill in this way extend to the most ridiculous and inconsiderable things in Life; for, in the Books of this worthy Class of Mortals, you may be informed which Days are most lucky for putting on a new Suit of Cloaths; and which most proper for counting your Money. From these Magazines you may learn, which Days you ought to choose for selling, and which for making Purchases. These Treasures of useful Knowledge will also direct you to the very Day on which you ought to cut your Hair, or shave your Beard. Here their matchless Impudence does not stop, but boldly incroaches on the sacred Province of Physic, by fixing some Days as particularly proper for Venesection, Purging, and the Exhibition of other Medicines. *Langius*, who was Master at once of the Simplicity and Learning of the Antients, in *Ep. 35. p. 1.* on this Occasion falls into this rapturous Exclamation, *O Flagris dignum Facinus, quo innumeros perdunt agros!* "O blackest of Crimes, and worthy of the severest Chastisement, since by it Numbers of Patients are destroyed!"

But tho' we reject the superstitious Fables of Astrologers, as impertinent and idle, yet we must beware of running into the opposite Extreme, and utterly denying all Influence and Efficacy of the Stars. If we should, our Conduct would be highly impious, and throw a manifest Reflection upon the Wisdom and Skill of that Being who formed the vast and harmonious Frame of Nature; for we cannot possibly suppose, that the spacious Canopy of Heaven was thus bespangled with radiant Orbs, and adorned with twinkling Stars, for no other End than to direct our Steps by their Light, feast our Eyes by their Splendor, or gratify the noble Excursions of our Fancies by the Imminency of their Number. We ought rather to conclude, that the adorable Author of Nature designed them for dispensing Blessings of a higher and more important Nature to the human Species. The surprising Number, the vast Bulk, and the regular Motions, of the heavenly Bodies, struck the Antients with such an awful Veneration for them, that they paid them a divine Homage, erected Altars for their Worship, and in short neglected no Circumstance by which they could testify an unfeigned, but impious and ill-founded Regard for the Stars. They were well apprised of the Efficacy of these Bodies, and thoroughly convinced, that they imparted Life and Vigour almost to every sublunary Object. For this Reason 'tis the less to be wondered, that the ancient Physicians consulted the Stars so much in the Cure of Diseases, and rely'd so firmly on the Observations they made from them. But though their Diligence in this respect calls for due Encomiums at our Hands, yet their Fate is to be lamented; because their want of due Experience, and proper Observations, left them in the Dark, as to the real Manner in which the Stars operate on terrestrial Bodies. The Nature and Extent of this Influx or Operation is what I now intend to handle, and that in such a manner, as to separate Truth from Falshood, and distinguish between what is useful, and what is trifling. For this Purpose it seems necessary, that I not only confirm my Opinion by the Authorities of the

Learned, but also give it the more noble and weighty Sanction of Reason and Argument.

'Tis therefore my Opinion, that not only the Sun and Moon, but also the other Stars, the Planets more especially, operate upon terrestrial Bodies; and that immediately by the Æther and Atmosphere, these, being influenced and changed by the Stars, must of Consequence induce various Changes and Alterations, not only on vegetable, but also on animal Bodies. Thus 'tis past all Dispute, as I shall afterwards endeavour to shew, that the Stars are capable of exciting various Storms, Winds, and Commotions in the Atmosphere; from which Circumstance we may easily conceive the Possibility of their inducing Alterations, and exciting Commotions, in our Bodies. Hence any one, who allows himself to think, must plainly see, that Astronomy is not only an Ornament, but also a real and genuine Advantage, to a Physician.

I shall now collect the most noted Passages of the divine *Hippocrates*, which have a Tendency either to illustrate the Truth, or prove the Importance, of this Doctrine. The first of these is that elegant Passage in his Book *de Aere, Locis, et Aquis*: "If," says he, "any one diligently observes the Changes of the Seasons, and the Manner in which the Risings and Settings of the Stars happen, he will by this means be qualified to foresee the State of the Weather throughout the Year." And in another Treatise he affirms, in as many Words, "That no one ought to commit the Care of his Health to him who is ignorant of Astronomy, because such a one cannot be a well-qualified Physician." And again, in his Book *de Aere, Loc. & Aquis*, "Tis," says he, "absolutely necessary we should consider the Risings of the Stars, especially of the Dog-star, Arcturus, and the Pleiades, since, at these very Seasons, Diseases are most skilfully prognosticated; and those which will prove mortal, best distinguished from those milder ones, which will either entirely quit the Patient, or pass into Disorders of some other Form and Nature." On the Whole, *Anatomy* is the Right Eye of Medicine, and a *Knowledge of the Stars* its Left. And the Physician who is ignorant of *Astronomy*, says *Albo Hazen Halii Filius Averragel*, "is like a blind Man, who, groping for his Way without a Staff, stumbles hither and thither at random; or like an infatuated and irresolute Fool, who is guided in his Conduct by false and delusive Appearances of Good and Evil."

That the heavenly Bodies operate on our Atmosphere, is also asserted by the divine *Hippocrates* in that memorable Passage of his Book *de Flatibus*, where he uses these Words: "All the intermediate Space between the Heavens and our Earth is filled with Spirit; and indeed the Efficacy and Virtues of the Sun, Moon, and Stars, are imparted to us by means of this Spirit." By the Spirit, or *τὸ πνεῦμα*, in this Passage, he without Doubt understands the Winds, the Æther, and the Atmosphere. But *Galen, Lib. 2. Prorethetico*, beautifully demonstrates the Influx of the Stars upon terrestrial Bodies in these Words: "If," says he, "the mutual Aspects of the Stars had no Influence on things below; and if the Sun alone, that glorious Source of Light and Life, should only be allowed to act upon our Earth, then the four Seasons of the Year would invariably preserve the same Appearances and Temperature, since the Sun performs the same Course in one Year that he does in another. But the Seasons of the Year are not, in Consequence of this, invariably of the same Nature and Temperature. The Stars must therefore concur in producing their different Qualities in different Years." But I shall now have recourse to the Suggestions of Experience, and from them deduce the Power and Efficacy of the Stars in raising Storms, exciting Tempests, and modulating the State of the Weather in general. And here 'tis particularly to be remembered, that we are not so much to regard the several Aspects of the Moon with respect to the Planets, as the mutual Aspects of the Planets with regard to each other; though the Moon is not at the same time to be entirely overlook'd and disregarded in this Affair. *Cook* and *Goad*, two celebrated *English* Philosophers, have very judiciously made the same Observation; and indeed repeated Experience has confirmed me in the full Persuasion of it.

When *Saturn* has an Aspect to any Planet, except the Sun, whether he is in Conjunction with that Planet, or in Opposition to it; whether his Aspect with regard to it be sextile, trine, or quartile, he compresses the Air, and excites cold Winds, which for the most part blow from the North. Hence in the Winter Season he produces keen and intense Frosts, and renders the Nights serene and clear; and in the Spring Season, especially in the Month of *May*, such Aspects usher in a sudden and unexpected Cold, which proves hurtful to Plants, especially those of the exotic Kind, or such as are not the natural Produce of our own Soil; when, on the other hand, *Saturn* is in Conjunction with *Venus*, we may expect cold Rains, accompanied with Westerly and Northerly Winds.

Jupiter concurring in any of the forementioned Aspects with another Planet, is generally observed to excite Winds, especially in

in the Spring and Autumn; and it rarely happens, that loud and boisterous Winds blow, but *Jupiter* has at that very Season an Aspect to some of the rest of the Planets, which favours the Production thereof. Among the Rain-producing Planets, *Venus* is the principal, especially when she is in Conjunction with *Mercury*, *Saturn*, or *Jupiter*. The principal Planets which exhilarate the Face of Nature with serene Weather, and convey a genial Warmth to our Atmosphere, are the *Sun* and *Mars*, especially in the Summer Season, and when they happen to be in Conjunction with each other. They also produce the same Effect, though in a milder Degree, when they are in Conjunction with *Jupiter* and *Mercury*.

Mercury produces such inconstant Weather, that by his Influence Showers, serene Weather, and cloudy louring Skies, mutually succeed each other, frequently in one and the same Day. He excites Winds when in Conjunction with *Jupiter*, and Rains when joined to *Venus*. 'Tis also to be observed, that the Operations of these Planets vary very widely, according to the different Situation of the Sun, and the various Seasons of the Year: For in the Winter Season *Saturn* excites far more nipping Colds than in the Summer. *Sol* and *Mars* also produce milder and weaker Heats in the Winter, than in the Summer Season. *Jupiter* and *Mercury* exert their Force and Influence more powerfully in producing Winds in the Spring and Autumn, than in the Summer. But of all the Seasons of the Year, none has the Misfortune to be rendered so disagreeable and pernicious by stormy and inconstant Weather, as the Autumn; for which Reason it is a very dangerous Season, and puts an End to the Lives of many, by the great Variety of too sensible Changes induced on the State of the Air and Weather; since about Noon the Air is hot, and in the Evenings, Nights, and Mornings, very cold.

'Twill not on this Occasion be improper to inquire how far the Moon contributes either to increase or diminish the Force and Influence of the Planets; for 'tis plain, from many accurate Observations, that the Full Moon so surprisingly imparts her Light to the other Planets, as in a remarkable Manner to increase and heighten their Influence and Efficacy. And, what is still more wonderful, her Influence upon them is so considerable, that they sometimes anticipate it two or three Days before the Aspect becomes perfect and complete. Besides, the Power and Influence of the Moon is sufficiently demonstrated by this Circumstance, that under all her Quadratures the State of the Air is not only affected, but undergoes very considerable Changes. For this Reason the Antients, by way of Eminence, styled her the *Mistress of the Weather*, because by her Means they were able to account for the Seasons, and their various Changes. Every one also knows how sensibly the State of the Weather is altered by the various Changes of the Moon; so that, according as the New Moon approaches, the Weather we enjoy'd during the Old is proportionably banish'd, and a different State of Weather gradually comes in. If the Curious desire farther Satisfaction in this Particular, they may consult the learned *Cook's Meteorology*, and *Goad's Meteorological Treatise*. 'Tis past all Dispute, as that excellent Astronomer *Kepler* has observed, that the Aspects of the Planets induce a very sensible Change on Meteors, and are of very considerable Influence in exciting Storms and Tempests; the Degrees and precise Times of which it were to be wish'd we could more accurately predict and determine: But we want a sufficient Number of Observations for that Purpose. How difficult it is to form an infallible Judgment in Matters of this Nature, may be gathered from this, that the preceding Aspects produce very considerable Alterations and Changes in those that follow them. To this may be added the Situation of the Place, the Nature of the Effluvia, and the Climate itself, which, upon an accurate Calculation, will be found to produce Changes no less considerable.

Experience itself, the surest Guide to Truth and Knowledge, evidently demonstrates to us, that the Aspects of the Stars have a surprising Influence, not only on Meteors, but also on our Bodies. This is sufficiently proved by the Vernal Equinox, and the Summer Solstice, about which Seasons the Force and Violence of Intermitting Fevers are either considerably weakened, or totally eradicated and destroyed. And, upon the Approach of the Summer Solstice, obstinate Quartan Fevers, which are generally produced by the Autumn, and are for the most part unconquerable at other Seasons, do of their own Accord remit, and easily yield to the Force and Efficacy of Medicines. It is also confirmed by undeniable Experience, that, about the Vernal and Autumnal Equinoxes, the Humours of our Bodies are in greater Commotions than at other Times. At these Seasons also the Motion of the Blood is more unequal than at others; for which Reason large and frequent Hemorrhages then happen to those who are subject to them. These Seasons are principally hurtful to old Men, who, in Consequence of them, are troubled with hæmorrhoidal Discharges, or at least with the Efforts of Nature to throw the Blood off by the Mouths of these Veins. And if these Excretions are not duly carried on, especially in those of tender and delicate Constitutions, various Disorders arising from Spasms, together with Pains in the Abdomen, and

about the Parts destin'd for the Evacuation of Blood, are by that means brought on. These Seasons are no less dangerous to those whose Circulations are languid, and who are advanced in Years, who at these Times have Reason to be afraid of various Stagnations and Infarctions in these Parts. For this Reason they have both Theory and Experience on their Side; who before the Equinoxes carefully recommend and injoin Venesection to People of plethoric Habits, and such as are subject to Effusions of Blood; for by this means the most effectual Method is taken to prevent the Disorder; and the Effusion of Blood, which otherwise seem'd ready to make its Appearance, is both quickly and safely ward'd off. If the Blood discovers a Tendency to discharge itself by the hæmorrhoidal Veins, Venesection in the Foot is most proper. If on the other hand it is inclined to come away by the Lungs and Nostrils, a Vein is most advantageously opened in the Arm.

The Equinoxes are particularly prejudicial to Phthical and Hectic Patients, and such as languish under slow Disorders. If at these Seasons chronical Disorders happen, they generally terminate in the Death of the Patient, or in a welcome Recovery; but it rarely happens, that Patients labouring under Diseases of this Nature survive the Equinoxes, but for the most part fall unavoidably Victims to the Force of the Disease with which they struggled.

During the Winter Solstice, Nature is in her weakest State, the Body languishes, and becomes less fit for Secretion and Excretion, than at other Times. For this Reason those who at this Time are seized with acute Disorders, are in imminent Danger, and frequently die. At this Season also the smallest Error committed with regard to Regimen, and the Non-naturals, is attended with fatal Consequences, and often lays too sure a Foundation for Diseases. The learned *Sanctorius*, in his *Treatise de Medicina Statica*, well observes, that, about the Winter Solstice, we perspire a Pound less than at other Times. By which Observation he plainly demonstrates, that at this Season the Perspiration is defective, the Motion of the Blood languid, and the Force of the moving Fibres weakened and impaired. For this very Reason the divine *Hippocrates*, in his Book *de Aere, Locis, & Aquis*, discards the Use of Medicines about any of the Solstices, in these Words: "But we are above all things to have a Regard to the more remarkable Changes of the Seasons, especially the Solstices, on which Occasions we must neither exhibit purging Medicines, *ἐξοσμωσιν*, without urgent Necessity, apply Caustics, nor make Incisions on the Belly and adjacent Parts, 'till ten Days or more, but never fewer, after the Solstice."

I now come to speak of the Force and Influence of the Sun upon terrestrial Bodies; and indeed of this we have not the least Reason to doubt, since the Point is plainly proved by the different Seasons of the Year, and their several Changes and Alterations. The sensible Changes produced in our Bodies by the different Seasons of Spring, Summer, Autumn, and Winter, are Circumstances too plain and obvious to stand in Need of a long and tedious Proof. Each of these Seasons has Diseases proper and peculiar to itself, as Experience reaches us, and as *Hippocrates* strenuously inculcates in all the Aphorisms of his third Section, but more fully and particularly in the nineteenth, where he uses these Words: "Diseases, indeed, of every Kind, happen at all Seasons; but some Disorders more readily appear at certain particular Times, than at others: Thus Madness, Disorders arising from black Bile, Epilepsies, Effusions of Blood, Quinsies, Heaviness, Hoarseness, Coughs, Leprosies, Tetters, ulcerated Pustules, Tubercles, and Disorders of the Joints, are more frequent in the Spring than in any other Season." And in the succeeding Aphorisms he enumerates the Disorders peculiar to each Season. In the twenty-first he musters up those peculiar to the Summer; in the twenty-second, those which rage in the Autumn; and in the twenty-third, he gives a Catalogue of the several Disorders which harass Mankind in the Winter Season.

'Tis a Circumstance particularly worthy of our Regard, that more People die in *March*, than in any other Month of the Year, except *October*, whose Influences prove equally fatal, and destroy a no less considerable Number. This is owing to nothing else but the Inequality and Inconstancy of the State of the Air during these Months; for at these Seasons an intense and nipping Cold sometimes prevails; sometimes, soon after, the opposite Extreme of Heat succeeds. Besides, the State of the Atmosphere is on these Occasions highly corrupted, and impregnated with noxious Exhalations, which being too gross and weighty to be carried up, remain near the Surface of our Earth, and produce numberless Disorders and Diseases. Hence the Body, not being able to bear the Intemperature of the Air, is suddenly thrown into various Disorders, and the Tone of the Fibres is miserably weakened; for the Strength and Elasticity of the Fibres bear a direct Proportion to the State of the Air. The Circulation of the Fluids, on the other hand, bears a direct Proportion to the Elasticity and Tone of the Fibres; and, in fine, such as the Circulation is, such will the several Excretions be.

be. Since then at these Seasons the Secretions are faint and languid, the Humours mult of Consequence become impure, stagnate in different Parts, and produce various Disorders; for either, by stuffing up the Vessels, they dispose some to flow and chronical Disorders, or, by distending them by their too great Quantity in others of more robust and hardy Constitutions, they excite spasmodic Contractions, which usher in Hæmorrhages, a Species of Disorder more frequent at these, than at any other Seasons.

The Influence of the Sun, though great in several Instances, is yet most remarkable in this, that Diseases either remit, or resume their Vigour according to its Course. Thus 'tis plain from Fact and Experience, that the Exacerbations of continued Fevers happen about the Rising of the Sun, and that the Paroxysms of Tertian Fevers generally seize the Patient about Noon. The Paroxysms of Quartan Fevers, on the other hand, generally happen in the Afternoon; and Catarrhal Fevers, for the most part, exert their highest Violence towards the Evening. The same holds true in Defluxions, heavy Pains, and Tumors, which generally afflict People most in the Evening.

The Moon also produces very considerable Changes and Alterations in morbid Constitutions. We shall therefore first consider the Effects of her being eclipsed, a Phenomenon of which the Valetudinary and Indisposed are too, too sensible. To this Purpose, *Joan. Matth. Faber, in Append. Dec. 2. Ann. 8vo. p. 49.* relates the following Fact: "A Gentleman, says he, of more than ordinary Distinction, and naturally of a melancholic Habit, became sad, morose and pensive, the Day before the Eclipse; but at the very Time of the Eclipse, he, like a Mad-man, with a Sword in his Hand, ran furiously, not only up and down his own House, but also those of his Neighbours, and the adjoining Streets, not only wounding Men, but also breaking Chairs, Doors, and whatever came in his Way." The illustrious *Ramazzini* has made a very curious and important Observation concerning the Constitution of the Years 1692. and 1693. which is, that after the Full Moon, and much more at the Change, the Petechial Fever, which raged in these Years, became more fierce and violent; whereas it assumed a milder Nature, and a more favourable Set of Symptoms, upon the Approach of the New Moon, but generally killed the Patients upon the Access of an Eclipse.

The Quadratures of the Moon also induce very remarkable Changes and Alterations upon languid and valetudinary Constitutions: Thus Epileptic Fits, in some, return on stated Days and Hours, that is, when the Moon returns to a certain Point of Quadrature, and at the New and Full Moons. And the inspired Penmen themselves [*Matthew, Cap. 4. Ver. 24 and 47.*] styled the Maniacs, and such as were subject to Epileptic Fits, *Σελμιαζόμενοι*, for no other Reason, but because they were in a peculiar manner affected by the Changes of the Moon. A certain Baron of *Limburg* had a young Man for his Servant, who, at every Full Moon, used to thrust his Head out a Window when it shined, and twist his Neck like a Serpent, till, being seized with a kind of Ecstasy, he dropped down, and remained for some time motionless. *Observ. Rumléri 66. ap. Velsch. Curat. & Observat. Gent.* I myself know several, who about the Full Moon are often subject to Head-achs, and Cardialgias, arising from the Stone. That, about or after the Full Moon, many have been seized with Apoplectic Fits, the learned *Wepf-fer*, in his Dissertation *de Apoplexia, p. 3. & seq.* has sufficiently confirmed by many Instances.

How great the Influence of the Moon upon the Female Sex is, may be plainly deduced from this, that the New and Full Moons carry on and support those Monthly Discharges on which their Health depends; hence this Discharge is, by way of Distinction, styled the *Lunar Tribute*, because the more remarkable Changes of the Full and New Moon rarely happen, without ushering in the Menstrual Evacuations of such Women as are blessed with Health, and Soundness of Constitution.

This Influence of the Moon upon Bodies induced the more superstitious of the Antients to pay it an uncommon Adoration, and foolishly address her for fruitful Seasons in their public Prayers. The *Roman Women* imagined, that it was very serviceable to them in bringing their Children into the World; for this Reason they paid a religious Veneration to *Lucina*, or the Moon, thinking by this means to render her propitious at their Deliveries. The Moon seems to have been invoked by Women in Labour, for this Reason principally, that her peculiar Office consists in dilating the Apertures, and enlarging the Passages of the Body; a Circumstance, as Women well know, of no small Importance in ushering a Child into the World. See *Macrob. Saturnal. Lib. 7. Cap. 16.*

At the Full Moon, scrophulous Tumors, as also those of the Belly, and glandular Parts, become larger than at other times, but subside, and become gradually less, in proportion as the Moon decreases. To this Purpose, the learned *Maurit. Hoffmann* [*Dec. 11. An. 6. Observ. 161. Misc. Curios.*] relates the following Story: "A Girl, says he, of fourteen Years of Age, and the Daughter of an Epileptic Mother, had her Belly gra-

"dually swelled as the Moon increased, and as gradually rendered less, and reduced to its natural State, as it decreased. She was also racked with the most violent and intense Pains, during the Time her Belly was thus distended." *Aulus Gellius, Noct. Attic. Lib. 20. Cap. 8.* in like manner informs us, that Oysters, and all Shell-fish in general, become gradually large as the Moon increases; and as gradually waste away, and become less, as it decreases, and becomes old. He also informs us, that other Animals are enlarged and diminished, according to the various Changes of the Moon; and *Hippocrates* is of Opinion, that most Women generally conceive about the Full Moon.

R. Bennet, whose Industry cannot be enough admired, has [*in Theatro Tabidorum, p. 98. & 99.*] observed, that during the first Quadratures of the Moon, or when it begins to arch itself into Horns, and more especially on the Nights preceding the New Moon, those Diseases which arise from a saline Matter, are exasperated: For the same Reason, Aches, Itches, and all the various Species of exanthematous Eruptions, do, on these Occasions, exert their highest Rage, to the no small Uneasiness of the Patients; whereas in the last Quadratures of the Moon, and when it is become quite full, Water and Humours are accumulated in the Body, as is plainly proved from those Diseases which arise from a vitiated Serum. For this Reason *Coryzas*, *Lethargies*, *Asthmas*, *Pallies*, *Cachexies*, and all Diseases arising from a corrupted State of the Lymph, rage more at these Seasons than at others.

Galen [*in Lib. 3. Prorrhet.*] has written beautifully on the Influence the Moon has on the human Body; and how much terrestrial Bodies are subject to its Impressions, is too much told by those who are troubled with Arthritic or Venereal Defluxions; for, according as the Moon bears an Aspect to temperate or intemperate Planets, it accordingly procures Days of Ease and Rest, or the Reverse, to such Patients. Its monthly Motion not only produces sensible Alterations in the human Body, but its diurnal Course has also a manifest Influence upon it. This Fact has been observed by many, but is by none more distinctly talked of, than *Carolus Piso*, in these Words [*Hist. Natural. Lib. 1. p. 24.*]: "The State of the Sick plainly proves, that Diseases are heightened, and Pains increased, in those six Hours, during which the Tide flows; and that the Symptoms are again remitted in the six Hours, during which the Flood ebbs. This Fact holds in chronical as well as acute Disorders; but more especially in such as draw their Origins from Defluxions, and too great a Fulness of the Vessels. It is also known, that when high Tides, and Swells of the Sea, happen about the Full Moon, some People are valetudinary; and that most People die during the Ebb of the Tide." This judicious Author asserts, that these Phenomena, in a great measure, depend upon the powerful Influence of the Stars, and the occult Qualities of the Sea and Heavens.

I need not here mention the surprising Influences of the Moon, on the Fruitfulness, Increase, and Decrease of Plants, since the Experience of Botanists and Husbandmen places that Truth in a Light too strong not to be perceived. However, among other Instances concurring to prove this Point, it is observed, that after the New Moon Trees are transplanted with the greatest Prospect of their proving fruitful. Upon this Occasion I must also take Notice of this Difference, that Trees grafted when the Moon is in the Full, bear Fruit sooner than others; but their Fruit is less, and more stony. Those Trees, on the other hand, which are planted about the New Moon, bear later; but make amends for this by the Beauty and Quantity of their Fruit.

All Plants, which are valued for their Flowers, are most properly committed to the Earth, when the Moon is in the Full; those, on the other hand, whose Roots we intend for Service, are most seasonably planted during the Decrease of the Moon. Wood also cut at the Full Moon, rots sooner, and is less proper for building, than that which is cut whilst it decreases. This is confirmed by repeated Experience, and is taken Notice of by *Macrobius* in these Words: [*Saturn. Lib. 7. Cap. ult.*]: "Wood cut either when the Moon is already in the Full, or when it is increasing, is entirely improper for building, since it is softened by the too great Quantity of Juice in it; and Farmers take care to reap when the Moon is on the Decrease, that by that means their Corn may prove dry." The same Author, in the above-cited Part, affirms, that Flesh carried in the Night-time, whilst the New Moon shines, becomes putrid and rotten, sooner than other Flesh. He there inquires at Length into the Cause of this Phenomenon, and ascribes it to the moist and humid Nature of the Moon.

Without saying any thing more on the Influences of the Moon, I now proceed to consider those Powers and Virtues which both ancient and modern Astronomers have observed the other Planets to have upon the human Body, especially when in a weak and sickly State. And first, *Mars* and *Saturn* are thought to produce none of the most benign Effects; for when either in Conjunction with each other, or with any of the rest of the Planets, they have in all Ages been believed to produce various

various Diseases, and Commotions of the Blood and Humours. *Jupiter* and *Venus*, on the other hand, are thought to be more benign Planets; and many Authors have affirm'd, that during their Conjunction the Body acquires new Strength, and Diseases are brought to terminate happily. *Mercury*, again, has always been thought a Planet of an indifferent Nature, and to assume the Qualities of the Planet with which he happens to be in Conjunction. That this Planet is principally instrumental in promoting the Diseases which arise from Serum, has with very good Reason been believed.

But more particularly, they believed certain Conjunctions to be either benign or malignant; thus they rightly enough imagined, that the mutual Aspect of *Sol* and *Jupiter* was subservient to the Cure of chronical Diseases, such as the Hypochondriac Disorder and Scurvy. Besides, under this Aspect they recommended Venesection, the Use of Purgatives, and other Medicines. The Aspects also of *Jupiter* and *Venus*, *Sol* and *Mercury*, as also of *Jupiter* and *Mercury*, are said to be salutary to phthical and hectic Patients, as also to such as labour under burning and inflammatory Fevers; favourable Crises are also said to happen under this last-mentioned Aspect. The Aspects of *Mars* and *Mercury*, on the other hand, as also of *Mars* and *Jupiter*, are bad, since they not only excite Inflammations, Spittings of Blood, and burning Fevers, but also portend the worst under these Disorders.

The Aspect of *Sol* and *Mercury* is favourable to those Disorders which arise from Phlegm and Serum. But the Conjunction of *Mars* and *Sol* is thought to excite Commotions in the yellow Bile, and by that means to bring on Inflammations of the Stomach, Fauces, and Brain. When *Mars* is in Aspect with *Mercury*, then People are disposed to the Gout, and to Pains, especially such as arise from Phlegm, and a too great Abundance of Humours. The Aspect of *Mars* and *Saturn* is said to be prejudicial to choleric and melancholic People; it also excites Cardialgias, Cephalalgias, Phrensies, and provokes the Mind to Wrath, and throws it into preternatural Commotions. The Conjunction of *Saturn* and *Venus* portends Danger to Women big with Child. It also excites Coughs, Coryzas, Gouts, Head-achs, Palies, and is thought to be in a particular manner hurtful to Children. The Aspects of *Venus* and *Mars* are inauspicious to Women big with Child, and such as are in Labour; and are for that Reason principally to be dreaded by them.

The Aspects of *Saturn* and *Jupiter*, as also of *Saturn* and *Mars*, are the inauspicious Forerunners of terrible Calamities to Mortals; for acute epidemical, and even contagious Disorders, follow the Conjunctions of these Planets. The baleful Effects of the Aspects of these Stars are sufficiently shewn from the violent Fevers, which after them have often raged with implacable Fury almost over all Europe. *Matth. Zeisius*, in *Orat. de Caus. & Period. Pestil. Morb.* has shewn, from many Observations, that the Aspects of these Planets generally threaten us with an imminent Danger of a Plague. Thus he says, that in the Year 1127. a Plague raged with such irresistible Violence, that the World was like to have been unpeopled by it, and that the Astronomers assigned the Conjunction of *Saturn* with *Jupiter*, as its principal Cause. *Boccace*, and *Guido de Cauliaco*, have, in their Writings, informed us, that the Aspect of *Jupiter*, *Saturn*, and *Mars*, was the Cause of the Plague which raged in the Year 1348. And *Marsilius Ficinus*, the greatest Philosopher of his Age, assigns the Eclipses of the Sun and Moon, and the Conjunction of *Saturn* and *Mars*, as the Cause of that which raged in the Year 1478. Thus also the learned *Caspar Bartholine*, Professor at *Tubingen* in Germany, from the Conjunction of *Saturn* and *Mars*, in the Year 1628. after a hot Autumn, and mild Winter, in a public Oration there delivered, predicted the Plague, which for some ensuing Years raged almost over all Europe. Thus also *D. Paulus de Sorbaet*, Physician to the Emperor, accurately predicted the Plague at *Vicenna*, from a Conjunction of the same Planets. To these we may add, what *Daniel Semertus*, *Lib. 3. Part. 2. Sect. 2. Cap. 7.* has observed, concerning the Epidemic Dyfentery which happened in his own Time, in the Years 1624. and 1637. in Consequence of the same Position of these Stars.

How much almost all the Antients ascribed to the Moon, and the various Positions of the Planets, with regard to critical Days, is every-where to be discovered in their Works. Nor is it entirely without Reason, though at the same time they seem to deserve some Animadversion even on this Head, that they ascribe so much, and trust so far, to the Moon, in constituting critical Days, exclusively of the State of the Dissemper, and Condition of the peccant Matter; for, besides what has been already said upon the Head, 'tis agreed upon by the *Literati*, that her Aspects with the rest of the Planets are of the utmost Importance. To this Purpose, I shall now quote a memorable Passage of *Eichstadius*, concerning critical Days, *Lib. 2. Eph. 11.* "If, says he, the Moon, in the Beginning of an acute Dissemper, should happen to have no Aspect with the other Planets, but should in the Progress of the Disease come within the Influence of some baleful Planet, either by Con-

junction, Opposition, or Quartile Aspect; or if, in the Beginning of the Disease, she should be exposed to the Influence of malignant Planets, and, in its future Course, also come into malignant Aspects, you shall then see deep Tragedies acted, dangerous Perturbations and Commotions excited in the Body, and very often Crises, which prove mortal. We are not therefore, says the learned Astronomer *Marbius*, in *Epist. Inst. Med. Lib. 3. p. 3. Cap. 8.* only to consider the Moon, but also the Force and Virtues of the other Planets, whose Influences she shall happen to receive."

As to the Method and Form of Practice, and the proper Seasons of exhibiting Medicines, the Antients also carefully consulted the Stars; for that Purgatives, or Venesections, used rashly, and without absolute Necessity, for the most part, produce bad Consequences at the Solstices and Equinoxes, the Eclipses of the Sun or Moon, or upon the actual Presence or Approach of a baleful Planet, for Instance, of *Saturn* with *Mars*, and their Conjunction with the Moon at the Hour in which these are used, is not only found from Experience, but fully demonstrated by that skillful Physician *Frederic Hoffman* senior. *Hippocrates*, in the Passage above quoted, absolutely discards the Use of Medicines about the Summer Solstices. Every Surgeon may observe a Fact, concerning which *Leu. Lemnius* has given a Caution, which is, that Wounds inflicted during the Conjunctions or Oppositions of the Luminaries, are more difficultly and slowly cured than Wounds received at other times. In all stumous Cases, Medicines exhibited during the Decrease of the Moon are more efficacious, than it used at other times. Patients who are afflicted with Epilepsie, or labour under Disorders of the Nerves or Head, ought at every Change of the Moon to use nervous, cephalic, and epileptic Medicines, from which they will find no small Relief. In Cases where the Intestines are racked with Worms, the Use of Anthelmintics is most successfully prescribed in the Decrease of the Moon. At that Time also Blood is most advantageously taken away; and this Practice is universally and religiously observed by the Inhabitants of *Switzerland*, who are uncommonly fond of this Operation. The Physician, who endeavours to promote the suppressed Menfes, will find his Intentions most effectually answered by prescribing the Use of Emmenagogues about the New and Full Moons. Three or four small bulbous Roots of Garlick are successfully taken by those who labour under the Stone, every Week, on the Days immediately preceding the Four Quadratures of the Moon. See *Frid. Hoffman. Clav. Pharmaceut. Sebrord. p. 406.* In like manner, when large Evacuations by Stool are intended, the Design is best and most safely carried on three or four Days after or before the Full Moon.

Having thus given an Account of the Sentiments of some of the most learned of the antient Physicians, with regard to the Influence of the Stars on the human Body, it now remains, that I give my own Opinion in this Point. And, to be as brief as possible, I declare at once, that I am for keeping a due and proper Medium; I neither attribute too much to the Stars, nor absolutely deny their Influence and Operations, but am for making a due and just Distinction between rational and well-founded Astronomy, and that which is superstitious, fabulous, and empirical. It is not indeed to be denied, that upon this Head some of the Antients have advanced things, which are not only superstitious and fabulous, but, which is worse, directly repugnant to Reason, and inconsistent with a Divine Providence; for who, that is not forsaken of his Reason, and deprived of his Senses, can approve of their running to so intolerable a Length of Madness, as to determine the Morals, the Fortunes, the Diseases, and Deaths of Men, from them? Who, on the other hand, can help lamenting, that the Part of Astronomy, which relates to Meteors, should have been hitherto so little cultivated, as, in a manner, to remain imperfect, dubious, and even destitute of a due and proper Foundation? And, upon this Occasion, I cannot help condemning the want of Accuracy in our Almanacks, which boldly predict certain States of the Weather; but the Events rarely agree with the Predictions. By this unlucky Circumstance, several, not only of the modern Physicians, but Philosophers, have been induced to run into the opposite Extreme, and utterly deny every the least Degree of Influence or Virtue to belong to any of the Stars, or heavenly Bodies, except the Sun. As an Argument for their Opinion, they advance the immense Distance at which they are removed from us. But certainly this Distance is not so great as to cut off and destroy their Influence upon our Globe; for, if it does not hinder the Influx of the Light upon our Eyes, it cannot, *a fortiori*, prevent its Action upon our Atmosphere, since it is interposed between us and them. Besides, Who can be so miserably hoodwinked, as not plainly to perceive and confess, that the wonderfully regular Motions of these Planets, their regular Progressions, and stated Conjunctions, were by Heaven, whose Designs are always vast in themselves, and beneficent to Mortals, intended to answer some noble and important Purposes? Nor indeed can the so

surprising

surprising Variety of Weather and Seasons be easily accounted for upon any other Hypothesis than the different Operations and Influences of the Stars, in Consequence of their various Situations and Positions. The Effects, 'tis true, of the Sun, are so evidently felt, that the Man must be somewhat more than Sceptic, who can deny them; but yet its Influences are by no means sufficient to account for so surprising a Diversity of Seasons; for we frequently find one Winter mild and gentle, another excessively cold and inclement; one Autumn dry, another rainy; one Summer the Ground is refreshed with frequent gentle Showers, and in another it is parched with continual scorching Heat. The Winds also do not always retain the same Qualities, nor blow from the same Quarter; but alter both, accordingly as they are influenced by the Stars. Those which blow from the North, are ordinarily accompanied with a piercing Cold; yet, which is surprising, they sometimes lay aside their Inclemency, and are observed for a considerable time to blow in a mild and gentle manner. And easterly Winds, which generally bring Rains, are sometimes also attended with clear and serene Weather.

But this Influence of the heavenly Bodies is placed beyond the Reach of Uncertainty or Doubt, when we consider, that the State of the Air is very much altered under the Aspect of two Planets. Though indeed we cannot predict and determine this Change in the State of the Air with that Accuracy and Exactness we could wish, yet we justly assert the Fact, since Experience adds her sacred and uncontrollable Sanction to it. I cannot, on this Occasion, forbear commending the Industry which Mr. Cook, an *Englishman*, and Mr. Schlitters, have used in this Affair, who, after long and accurate Observation, at last found every particular Change of the Air to be produced by the Situation of the Planets. I myself, for ten Years, carefully made meteorological and barometrical *Ephemerides*; and every Day frequently observed the Weather, the Changes of the Winds, and the Height of the Mercury in the Barometer. During the Course of these Observations, I can, without transgressing the Bounds of Truth, affirm, that the Aspects of the Planets, especially the superior ones *Saturn* and *Jupiter*, as also of *Mars*, whether with each other, or with other Planets, are invariably followed with certain and unavoidable Commotions of the Air, especially if several of these Aspects should happen at one and the same time.

There is no Occasion for proving by a long Train of Arguments and Observations, that Changes of the Weather happen about the Quadratures of the Moon, since that Fact is well enough known to the meanest and most ignorant of the Country People. But the Influence of the Moon on our Globe is, in my Opinion, remarkably confirmed by the Flux and Reflux of the Sea, a Phenomenon ascribed to the Changes of the Moon by the concurring Suffrage of all who know any thing of true Philosophy.

There is, then, an Influx of the Stars upon our Earth, and that too so sensible and manifest, that it cannot be denied by any one, who allows himself to observe the Alterations produced in Vegetables and Animals, by the Positions and *Phases* of the Moon. And I could heartily wish, that this Branch of Learning were more carefully cultivated and improved by a sufficient Number of Observations made in different Places at one and the same time, lest, for want of these, the Good to be expected from Researches of this Nature should be stifled in its Infancy. This may be best prevented by a sufficient Number of accurate Observations made in different Places at one and the same time, not only on the State of the Weather and Air, but also on the Winds, the Height of the Mercury in the Barometer, and the Degrees of Heat and Cold in the Thermometer. For this End, our new-invented Thermometer is well calculated, by which, though but one Machine, we not only discover the least Changes of Heat and Cold, but also the precise Proportion in which they are in the Air, without any Influence from the Weight of the Air, which is not the Case with other uncorrected Thermometers.

If, then, the Stars have an Influence on our Earth, as they undoubtedly have, it will be no difficult Task to shew, that our Bodies must be subjected to very considerable Changes and Alterations in Consequence of such an Influence; for he must be utterly ignorant both of Physic and Philosophy, who is unacquainted with the Force and Action of the Air upon our Bodies. The Air is of all the other Elements most necessary to us; by its means, Respiration, in which Life immediately consists, is performed. By it the *Anima Materialis*, as it is called, is nourished and supported; and by it that divine and heavenly Part of our Composition, called the *Soul*, is kept united with our Bodies. The Air acting by its Elasticity on our Bodies, and their Humours, is deservedly celebrated as the *productive Cause* of the Motion of the *Fibræ Matrices* of the several Muscles. The Air conveys a due Strength and Tone to the Solids, which maintain and carry on the Circulation of the Blood. The Air by its Weight and Pressure preserves the several Humours of our Bodies in a due *Equilibrium*, lest, being expanded by their

too quick and intense Motions, they should interrupt the necessary *Systole*, or Contraction of the Vessels. In fine, a Change of the Air is by *Hippocrates* [*Lib. de Flat.*] affirmed to be the Cause of the most terrible Distempers. Witness *Epidemical Diseases*, by which such a Number of Mortals are hurried into the other World, and which arise from no other Cause, than the Malignity of the Air; for the Circulation of the Blood, *cæteris paribus*, bears a direct Proportion to the State of the Air; and Health bears a direct Proportion to the Circulation of the Blood. A serene and temperate Air contributes to carry on the animal Functions with Ease and Tranquillity, and renders the Body sound and vigorous. A gross and dense Air, on the other hand, renders it weak and languid, by injuring the Excretions: Hence, the Tone of the Fibres being impaired, the due Motion and Circulation of the Blood is disordered and disturbed.

For this Reason the great *Hippocrates*, every-where in his Writings, insists upon the Air and its Properties. And, which is still more, from a diligent Observation of the preceding Season, he so accurately predicts the Constitution of the ensuing Year, and the Diseases that will rage during it, that his Predictions seem to carry something of a divine and infallible Nature in them. His incomparable Book *de Aere, Locis, & Aquis*, as also that *de Flatibus*, are well worth the Perusal of those who want Satisfaction on this Head; since his Industry, and extensive Skill, of which he has given numberless other Proofs, no-where appear more conspicuously, than in these Performances; for he was the first who raised this Doctrine, as it were, from a State of Non-existence, and exalted it to a Branch of Physic, which is not only curious in itself, but beneficial to Mankind. And it were to be wished, that more had trod in his Steps, and used their highest Care and Industry to enrich this Branch of Learning with a sufficient Store of accurate and well-made Observations. The Words of this divine Author, in his Book *de Humoribus*, contain an Observation of such Importance to Physic and Mankind, that they richly deserve to be written in Characters of Gold. *Such as the Weather and Seasons are, such will the Diseases and Constitutions arising from them be.* If the Weather is seasonable and natural, Diseases which readily arrive at a Crisis are produc'd. And the Diseases peculiar to particular Seasons are subject to Alterations from the Variety of these Seasons.

From what has been said, every one must plainly perceive, that since the Situations and Positions of the Stars induce Changes and Alterations on our Atmosphere, they must of consequence affect our Bodies with various Changes. Nor is it to be doubted but they act on our Minds, and variously affect the Genius and Dispositions of Men; for every judicious and skilful Physician is well apprised, that the Temperament and Motion of the Blood give a particular Turn to the Mind, the Morals, and the Genius. But that the *Soundness of the Body* depends upon the Air, which is influenc'd and acted upon by the Stars, is a Point already so clear and undeniable, that it stands in need of no Proof. And, indeed, I am inclin'd to think, that the Antients were by this induced, not only to ascribe to the Stars an Influence over the Body and the Mind, but also from them superstitiously to predict the Fates of Men, and the lucky and unlucky Events of Things. In this they were wrong, and their Error is justly censurable as superstitious and trifling.

But though, by reason of our limited and shallow Capacities, we cannot comprehend the real and actual Manner in which this Influx is performed, yet this Circumstance ought not to shake and invalidate a Fact, to which Experience gives her daily Suffrage; for how many Phenomena are there, both in Medicine and Natural Philosophy, for which we cannot account, but which, at the same time, leave no room in our Minds for Doubt, *Scepticism*, and Uncertainty? Besides, 'tis a Maxim in Philosophy as just as 'tis old, *That from our Ignorance of the Modus, or, as the Greeks express it, from the τὸ οὐκ οἶσθαι, or Manner of Existence, to the τὸ εἶναι, or real Existence, there arises no just Conclusion.* But it seems worth while to make at least an Attempt to remove this Doubt. The Manner, then, in which this Influx is made, seems to be by *Rarefaction, Compression, and Direction of Motion in this or that Line.*

Thus *Saturn* seems to act upon our Bodies, and the Atmosphere, by compressing the Air, and giving its Parts a rectilinear Direction in their Motion, by which means Cold and Winds are produced. *Sol* and *Mars*, if we may indulge Conjecture in a Point so little subjected to our Senses, produce a vertical and intestine Motion in the Particles of the Air, the natural Consequence of which is *Heat*. But *Venus* and the *Moon*, by rendering the Air lighter, lay a Foundation for Store of Vapours being raised, and are therefore found to occasion rainy Weather. The Moon at her Quadratures rarefies the Air too much. Hence our Bodies and Juices become turgid, and our Transpiration is too great. At New Moon again, or an Eclipse of the Moon, the State of the Air is compressed, a Circumstance which excites various Disorder.

The most noble of all the Planets, and that which most contributes to the Support of the Body, is the *Sun*, whose Efficacy in the Preservation of Health is so conspicuous, that the Antients ascribed a Power of curing Diseases to it; because they observed, that the gentle and temperate Heat of the Sun had a Tendency to remove and carry off all Distempers; for *Apollo*, the God who presides over Physic, is the same as the Sun. For this Reason he was, according to *Macrobius*, styled *Sospitalis ac Medicus Deus*, *The God who procures the Safety, and protects the Health of Mankind*; and had also Divine Worship paid it by the Heathens on this Account.

The Conjunction of *Sol* with *Jupiter*, of *Jupiter* with *Venus*, as also the Aspect of *Jupiter* and *Mercury*, are particularly beneficial in removing those Disorders which arise from Spasms, and spasmodic Constrictions of the Fibres. For this Reason they are propitious Planets to hypochondriac, hysterical, phthical, and inflammatory Disorders; for, by rendering the Atmosphere light, they relax the Tone of the Fibres, and promote the Transpiration of the impure and recementitious *Sordes* lodg'd in the Body. For this very Reason also, under the Conjunction of *Sol* and *Jupiter*, all Attempts to restore and preserve Health, whether by Venesection, Purgatives, or other Remedies, are most proper.

The Aspect of *Sol* and *Mercury* is of Service to phlegmatic Disorders, and such as draw their Origins from Serum. The same Effect is also produced by the Aspect of *Sol* and *Mars*, which, on the other hand, is prejudicial and hurtful to the Choleric, whilst it too much increases the intestine Motion of the Blood, and by that means produces bilious and hot Diseases, especially Hæmorrhages. The Conjunction of *Mars* and *Mercury* produces almost the same Effects.

The Aspect of *Venus* and *Saturn*, by compressing the Air, renders the Fibres tense, blocks up the Pores, and prepares and disposes the Body to Spasms, Rheumatisms, Fevers, Coughs, Coryzas, and Abortions. The Aspect of *Mars* and *Saturn*, by throwing the Blood into internal Commotions, and obstructing external Perspiration, disposes to Anger, and excites unbridled Passions. The same Aspect promotes the Diseases arising from Bile, and for that very Reason uses to pave an easy Road to Putrefaction and the Plague. The long-continued Aspect of *Venus* and *Mercury*, by rendering the Atmosphere lighter than it ought to be, disposes to Ulcers, putrid Diseases, Worms, *Aphthæ*, and catarrhus Fevers. The Aspect also of *Saturn* and *Jupiter* produces a Train of fatal and melancholy Effects; for the Aspect of *Jupiter* rarefies the Humours, whereas that of *Saturn*, by an external Pressure upon the Body, hinders Perspiration.

I have already said, that, during the Increase of the Moon, Tumors were enlarged; and this happens for no other Reason than this, that the Moon, not only by her Rarefaction, but her Humidity, relaxes the Tone of the solid Parts: Hence Perspiration is interrupted, and an Accumulation of Humours, Blood, and Serum, ensues. But, upon the Decrease of the Moon, the Perspiration acquires new Force and Strength, by which means the Tone and Elasticity of the Fibres are restored and augmented. For this Reason People at this Season receive the most considerable Advantage from the Use of Medicines; for then Evacuations of all Kinds, and Venesection, that great Preservative, are more proper, and more beneficial to the Constitution than at other Times.

That we ought to abstain from the stronger Purgatives during the *Solstices*, is evident from this, that, during the Summer Solstice, the Strength is dejected, and the Spirits languid, in consequence of the violent Heat. The Winter Solstice, on the other hand, is always accompany'd with the greatest Imbecillity, and Nature is then at her lowest Ebb. Since also the Equinoxes, in consequence of their Humidity, relax the Fibres, they must of course retain within the Body the Humours, whose Expulsion and Elimination are attempted. For this very Reason, if about the Equinoxes the more Drastring Purgatives are used, it readily happens, that the Humours, being by their Violence forcibly driven to particular Parts, excite dangerous and fatal Stagnations; for which Reason the Physician is at these Seasons to be particularly careful never to prescribe these strong Purgatives, but rather make Choice of the mild and gently operating Laxatives. In the Decrease of the Moon, such Medicines as are designed against Worms and Tumors, are most properly used; because at that Time Nature being in her most flourishing State, increases their Operations, and proves an excellent Assistant to them; and the more powerfully Medicines are assisted by the concurring Forces of Nature, the more speedy and successful their Operations will be, and *vice versa*.

But it is above all things to be remember'd, that the Influence of the Stars is to be rank'd among those Causes of Diseases only, which affect our Bodies, whether in a sound or valetudinary State, in a remote and secondary manner; for the Stars only dispose to particular Disorders, and particular States of the Body and Fibres; but they are not the proximate and immediate Causes producing the Disorders themselves.

VOL. I.

The Maxim of the Antients relating to this Particular is very just, when they say, that the Stars indeed *inclin'd*, but could not *necessitate*. In order to produce a necessary Effect, a proximate and immediate Cause is necessarily requir'd; but, in order to produce any Effect, many remote Causes must concur. It must also be remember'd, that the Stars act upon our Bodies not *secundum modum activitatis*, or merely by their own Virtue and Energy; but *secundum modum Receptivitatis*, or according to the State and Disposition of the Objects on which they act. This Observation is on this Occasion so much the more carefully to be adverted to, as it ought to be fixed and riveted in the Mind, with regard to all morbid Causes whatsoever, the Effects of Diseases, and the Operations of Medicines. For this Reason we observe, that all Bodies are not affected in the same manner by the Stars, but the same Effect which proves beneficial to one, sometimes proves hurtful, and injurious to another. Lastly, 'tis not to be forgotten, that the Influences of the Stars are most conspicuous and perceptible in valetudinary and infirm Constitutions; for these, in consequence of their lax and spongy Habit of Body, and the too languid Motion of their Blood, are in a particular manner expos'd to the baleful Influences they diffuse, whereas those of a more hardy and athletic Make, are not easily injur'd by them.

In the last Place, this is to be duly remember'd, and carefully adverted to, *That, in Cases of URGENT NECESSITY, neither the Position of the Stars, nor the State of the Atmosphere, are to be regarded*; for no Physician ought to recede from what he thinks a rational Practice in acute Diseases, because the Aspects and Positions of the Stars are had, according to the Advice of that skilful Physician *Levinus Lemnius*.

Thus in a Quinsy, Pleurisy, and Inflammations, we are to disregard the Stars, but have immediate recourse to Venesection: For as the skilful Pilot, on the Prospect of an approaching Tempest, loses no Time, but struggles for Life and Safety against Wind and Tide, till, by a prudent Management of his Sails and Oars, he has brought his Ship to a secure Station, where she may be shelter'd from the Violence of the raging Winds and Billows; just so the skilful Physician, neglecting the Stars, and their Influence, has recourse, as soon as possible, to such Medicines as remove the Violence of the Distemper, and place the Patient beyond its Reach. *Hoffman*.

ASTRUM, ἀστὲρ. The same as ἀστήρ, a Star.

Astrum, with the Chymists, signifies that Virtue and Power which accrue to Things from their Preparation: Thus the *Astrum* of Sulphur is its Kindling, by which it is changed into a most excellent Oil; and the *Astrum* of Salt is its Resolution into Water or Oil, by which, in like manner, it acquires greater Strength. The *Astrum* of Mercury is its Sublimation, by which it acquires a wonderful Force and Power, of more Extent and Subtily than it was endu'd with by Nature. It is otherwise called *Alcol*, *Quinta Essentia*, *Extractum*, *Sperma*, &c. *Ruland. Johnson*. There is also the *Astrum Solis vel Auri, Lunæ*, &c. *Astrum ex Igne* is burning like Fire, and making a vehement Impression. *Ditt. Paracelsum*.

Astrum is also a Name given to certain Medicines, as Troches, or those in the Figure of little round Cakes, impress'd with an Asterisk. Hence we read in *Galen*, *Lib. 8. de C. M. S. L. Cap. 3.* and in other Places, of the invincible, somniferous, anodyne *Aster*. And with some Chymists a Remedy bears that Name, not so much on account of the Impression, as its extraordinary, and, I may say, *Astral* Virtues; for Example, the *Astrum* of Serpents.

ASTUR, in *Aldrovand. Ornithol.* is the same as ACCIPITER.

ASUB. The Galaxy. *Ruland. Johnson*.

ASULCI. Lapis Lazuli. *Iidem*.

ASUOLI. Ink, Soot. *Iidem*.

ASYMPHOROS, ἀσύνφορος, from a Neg. and συμφέρω, a Calamity, Misfortune; not detrimental or dangerous. Thus *Lib. 1. περί διαίτης καὶ τῶν βρωμάτων τὰς γυναικῶν καὶ ἀσύνφορα μαινομένη*, "after a short Inflammation, which was no way dangerous, they grow mad."

ASYMPHYTON, ἀσύνφωτον, from a Neg. and σύνφω, concrete, coalescent, in *Hippoc. Lib. περί τέχνης*, signifies whatever is disjoin'd by Nature, and not continuous.

AYSMPYOTON, ἀσύνφωτον, from a Neg. and σύνφω, of σύνφω, to subside, to be compressed, or contracted. Uncompressed, uncontracted. *Ἀσύνφωτον*, in *Hippoc. Lib. περί χυμῶν*, denotes what is not contracted or compressed thro' Dryness. In *Gal. L. 1. ad Glauco. ἀσύνφωτον ἢ ὡσαύτως τὴν σωματικήν*, "the whole Habit of the Body keeps up without sinking," was before expressed by *ἀσύνφωτον ὡσαύτως σωματικήν*, "nor was the Bulk of the Body sunk or contracted." Thus *σύνφωτον*, *Lib. περί χυμῶν*, signifies a Sinking or Contraction of the outward Limits of the Body; and *Aph. 3. Lib. 1. σύνφωτον* are called *κινῶναι*, Evacuations, importing such Compressions to be the subsiding of the Vessels upon Evacuation.

ASYNETHES, ἀσυνήθης, from α Neg. and συνήθης, customary; uncustomed. *Hippoc. Lib. 2. Aph. 49, 50.*

ATAC, Talc, or Nitre. *Ruland. Johnson.*

ATACTOS, ἀτάκτως, from α Neg. and τάξις, Order. Disorderly, irregularly. An Adverb often used by *Hippocrates*, in Conjunction with περιπλανημένως, “after a wandering manner.” Thus, for Instance, *Lib. 1. Ep. 1.* ἑργα ὅ πασαν ἀτάκτως καὶ περιπλανημένως ἐγένοντο, “all had Shiverings in a “vague and irregular manner.”

ATA MARAM, H. M. *Pomifera Indica, Fructu conoide squamoso viridi.* The same as AHATE DE PANUCHO RECHCHI, which see.

ATANOR. A Pot perforated. *Ruland. Johnson.*

ATARACTOPŒSIA, ἀταρακτοπνοσία, from α Negat. ταρακτός, troubled, and ποίω, to do. The performing an Action with an undisturbed and intrepid Mind, becoming a Physician. *Hippoc. περὶ νοσήσ.*

ATAXIA, ἀταξία, from α Neg. and τάξις, Order. Irregularity. In a special Sense it signifies the Disorderliness and Irregularity in Crises and Paroxysms of Fevers, *Hippoc. Lib. 1. & 3. Ep.* A Pulse is said to be ἀτακτός, irregular, when it observes no Order in the Time or Tone of the Strokes; and an erratic Fever is called ἀτακτός, or ἀτυπός, which keeps no certain Character or Order in its Periods.

ATAXMIR. An Arabic Word in *Albucasis*, signifying the Method of treating an Eye when preternatural Hairs grow under the natural ones on the Eyelids, and incommode the Eye. *Castellus.*

ATEBRAS, uncus aquinus, that is, a Subliming Vessel. *Rulandus.*

ATECHNIA, ἀτεχνία, from α Negative, and τέχνη, an Art. Want of Art. Τὸ οὐδ' ἐργάζεσθαι ἀτεχνίαν εἶναι, ὅπερ μὴ ἐρῶν ἐστὶ μηδὲν, μὴ δὲ ἐκ ἐρῶν. “I assert that to be void of “Art, in which there is nothing right, and nothing wrong.” *Hippoc. περὶ τέχνης.*

ATENES, ἀτενές, fix'd, immoveable, rigid. Thus ἀτενές ὄμμα is a fix'd and immoveable Eye, a rigid Aspect. *Galen, Comm. 3. in Prorrhet.* explains it by θρασυ, bold, vehement, a fierce and wild Aspect, which portends a Phrensy. Ἀτενέως ἐκλάμπουσιν ὀφθαλμοί, “the Eyes are fix'd, and shine,” which is a Sign of a Delirium. Ἀτενέως ὄμα, Eyes fix'd, intent, looking earnestly. *Lib. 5. & 7. Epid.*

ATER SUCCUS, or ATTRA BILIS, are sometimes used to express the Black Bile, Melancholy. See BILIS, and MELANCHOLIA.

ATERAMNA, ἀτέραμνα, in the following Passage of *Hippocrates, Lib. de Aere, Locis, & Aquis, Ad τὰ θέρμα ὄντα σκληρὰ τε καὶ ἀτέραμνα, καὶ ψυχρὰ,* is expounded by *Galen* in his *Exegesis*, by τὰ δυσκαίτιστα καὶ σκληρὰ, “difficult of Concoction, and hard;” in which Sense the Place quoted will be render'd, “because the Waters are hard, and difficult of “Concoction, and cold.” The same Author, *Com. 4. in Lib. 6. Epid.* writes, that some of the Antients call'd bad Waters ἀτέραμνα, and ἀτερόμονα. And in another Place, *Comm. eodem*, he tells us, that Rain-water was better than what fell with Hurricanes, which could neither be digested nor alter'd, but was like the Water of some Fountains which the Antients call'd ἀτεράμωνες. These Words import as much as untameable, indigestible.

Ἀτέραμοι κοιλιαί, *Lib. de Aere, Locis, & Aquis*, are hard, dry, stubborn Bellies, not lubricous or mollify'd, and opposed to εὐεστέραι, “such as are more fluid, or loose. Ἀτερόμοις, in the same Treatise, is expounded, by *Erosian*, δυσμετέλλοις, “difficult of Alteration.” Ἀτεράμων there also signifies Crudity, and Difficulty of Concoction; but when transferr'd to the Mind, it denotes an untractable Nature, a refractory Disposition, and rough and unciviliz'd Manners, incapable of being polish'd or soften'd. *Hippoc. ἐν παρηγγελίαις* Τὸ οὐδ' ὅπερ δίδε, ὑπερβυμένον ἡμερὸς ὑπερβυμένον πένει ἢ ἀτεράμωνος “The true “Physician will undoubtedly perform his Office with Honour “and Conscience, rather than by hard and rough Treatment.”

ATRES, ἀτρες, from ἄτη, Loss, Mischief. Noxious, detrimental. *Hippoc. Lib. de Aere, Locis, & Aquis*: ἐν μέσσοις ποταμοῖς μὴ μὴ ἔσσαν, τὰ δ' ὅθ' ὁδὸν κρηναὶ τε καὶ εὐρύματα πίνοισιν, καὶ ὁδὸν ἀνάγκη τὰ τοιαῦτα τῆς γαστρὸς ἀτρεῖα εἶναι καὶ σπληνός. “But if there be no Rivers, and they drink of stinking and stagnating Springs, such Waters must of necessity “be pernicious to the Belly and Spleen.”

ATHANASIA, from α Negative, and θάνατος, Death (Immortality). An Antidote which *Galen* describes in the eighth Book of his Topics, as a Medicine for Infirmitates of the Liver, the Gravel, and the Yellow Jaundice. It is thus prepared:

Take of Saffron, two Drams; Cinnamon, one Dram; Spikenard, two Drams; Cassia, Myrrh, Juncus odoratus, of each one Dram: Make them into an Eleuthary with Honey. Taken to the Quantity of a Grecian Bean, it provokes Sweat plentifully.

There is another Antidote of this Name, which *Paulus, Lib. 7.* ascribes to *Oribasius*, which takes in all the Ingredients of the former, but varies the Proportions, with an Addition of Opium; which, he says, is a Lenitive of Pain, and proper for the Pleurisy, and would have it supply the Place of *Philonium*.

Ἀθανασία signifies also the Collyrium ἀδνηκτον, describ'd by *Aetius, Lib. 7. περὶ τῆς ἀδνηκτον καὶ λευκὴν κολλυρίων*, that is, of white and mild Collyriums. *Gorræus.*

Athanasia is also a Name given to many Compositions in some foreign Dispensatories, one of which is in the *Augustan*.

Athanasia, according to *Blancard*, is a Name for TANACETUM, which see.

ATHANATOS, according to the last-named Author, is the LYCHNIS CORONARIA, which see.

ATHANOR. This is, by *Lemery*, deriv'd from *Tannaron*, an Arabic Word, which signifies a Furnace.

It is a sort of Furnace, contrived in such a manner as to keep up an equal and gentle Heat for any Length of Time, by only supplying it every twenty-four, or sometimes every forty-eight Hours, with a proper Quantity of Coals. It is very useful in Operations where a long-continued gentle Heat is required.

ATHARA. See ATHERA.

ATHARES, ἀθαρίς, from α Negative, and θείρω, to corrupt. Uncorrupted. This is an Epithet sometimes apply'd to a Virgin; and sometimes to Iron, with regard to its Hardness, Incorruptibility, or Invincibility.

ATHELXIS, ἀθελξις, from ἀθέλωμαι, to suck, or drain by Milking. Suction, or that Attraction which is perform'd by sucking or milking. The Verb ἀθέλωμαι is used by *Hippocrates, περὶ χυμῶν*, and ἀθελξις, in the Treatise περὶ ἀρθρῶν but the best Copies, as *Foesius* says, for ἀθελξις, read ἀλθεξις, which he himself approves, and renders *Sanatio*, a Cure.

ATHENA, ἀθίνα, is a Plaster commended by *Asclepiades*, and describ'd by *Oribasius, Aetius*, and *Paulus*. It is thus made:

Take of Cadmia, twenty Drams; of burnt Brass, Bark of Pomgranate, Galls, long and round Birthwort, Sal Ammoniac, Squama Aris, round and scissile Alum, Orris, Misy, Chalcanthum, Chalcitis, Verdegrise, Aloes, Myrrh, Frankincense, Gum Ammoniac, Galbanum, each thirty Drams; of Wax, Pitch, each one hundred, or, as others, two hundred Drams; of Colophony, four hundred Drams; of Oil, six Ounces.

This is *Oribasius's* Receipt; but *Asclepiades* prescribes

Twelve Drams of Aloes, as many of Myrrh, and sixteen Drams of Gum Ammoniac: Pound the dry Ingredients for several Days together in the Summer's Sun; then melt those which are liquifiable, and incorporate them with the others.

It is very effectual in Wounds of the Head and Nerves, and is reckon'd by *Paulus* among the ἐμμόδα σάρμακα, Remedies spread upon Lint or Linen, and thus introduced into Wounds or Ulcers.

ATHENÆUS.

Athenæus was the first Founder of the Pneumatic Sect, and a Native of Attalia. There were several Towns of this Name; but it is most likely, that the Attalia which gave Birth to this Physician was a City of Cilicia, because *Cælius Aurelianus* [*Autor. Lib. 2. Cap. 1.*] mentions one *Athenæus* of Tarsus, who is probably the same; for Tarsus being also a City of the Province of Cilicia, *Cælius* might have, very probably, put the one for the other.

This Physician appear'd after *Themison*, as we may gather from a Passage of *Galen*, where he says, that one *Magnus*, a Follower of *Athenæus*, had composed a Book, intitled, *Things discover'd since the Time of Themison*. 'Tis very probable, that *Magnus* composed this Book with no other View than to give an Account of the Innovations his Master had made in Physic. The Silence of *Celsus* and *Pliny*, with regard to *Athenæus*, are also a Proof, that he did not live, or at least was not known, in their Days; since 'tis probable, that, having mention'd other Innovators in Physic, they would not have forgotten him. It is indeed possible, that *Athenæus* might not have made his Appearance in the World in the Time of *Celsus*, who lived under *Augustus* and *Tiberius*: But as for *Pliny*, if we consider, first, that there were about fifty Years between him and *Archigenes*, the former having written under the Emperors *Nero* and *Vespasian*, and the latter, at the farthest, under *Adrian*; and secondly, that *Archigenes* was the Disciple of *Agathinus*, who again was the Disciple of *Athenæus*; we shall find, that this last must have lived at least fifty Years after *Archigenes*, and consequently must have been contemporary with *Pliny*. If this Representation is just, as we may suppose *Pliny* to be a little older than *Athenæus*, and to write before him, we have no Reason to be surpris'd, that *Athenæus* is not mention'd by him.

As for the Philosophical Opinions of *Athenæus*, he did not believe, [*Galen. Introduct. seu Medicus, Cap. 9.*] that the Fire, the Air, the Water, and the Earth, were true Elements; for he only gave the Name of Elements to the primary Qualities of these Bodies, that is, to Heat, Cold, Humidity, and Dryness; the two former of which were, according to him, efficient, and the two latter material Causes. *Athenæus* added a fifth Element, which he call'd *Spirit*: He imagin'd, that this *Spirit* penetrated all Bodies, and preserved them in their natural State. This Sentiment he borrow'd from the *Stoics*; and 'twas probably this which induced *Galen* to call *Chrysippus* the *Stoick*, the *Father of the Pneumatic Sect*.

This Opinion is also hinted at by *Virgil*, [*Æneidos, Lib. 6.*] in these Words:

*Principio Cælum, ac Terras, Camposq; liquentes,
Lucentemq; Globum Lunæ, Titaniaq; astra,
Spiritus intus alit: totamq; infusa per Artus
Mens agitat Molem, & magno se corpore miscet.*

Athenæus, applying this System to Physic, would have all Diseases to proceed from the *Spirit suffering*, or receiving the first Assault, *τὸτε πρωτοπαθόν*, that is, *πνεύματι* [*Galen. Introduct. Cap. 9.*]. But as the Works of this Physician have not reach'd us, we know not particularly what he meant by this *Spirit*, nor what he understood by its *suffering*: Only from his Definition of the Pulse we may conclude, that he believed the *Spirit* to be a Substance capable of Dilatation and Contraction. "The Pulse, said he, is no more than a Motion produced by the natural and involuntary Dilatation of the Spirit contained in the Arteries and Heart; which Spirit, moving of its own Accord, moves at the same time the Heart and Arteries."

This is all we know concerning the Sentiments of *Athenæus*, except some things relating to Anatomy, in which he follow'd *Aristotle*. *Galen* [*de Different. Puls. Lib. 4. Cap. 4.*] observes, that none of the Physicians of these Days had written so universally on Physic as *Athenæus*; but of all he wrote we have nothing remaining, except two or three Chapters in the Collections of *Oribasius*, from which we learn nothing that can explain this Opinion relating to the *Spirit*, much less any thing that can discover its Use with regard to the Practice of Physic.

ATHENATORIUM, a thick Glass Cover, which is in the *Theatrum Chymicum, Vol. 3. p. 33.* directed to be luted to a Cucurbit, when the Alembic is taken off, in a particular Process there describ'd.

ATHENIONIS CATAPOTIUM. The Name of a Pill in *Celsus, Lib. 5. Cap. 25.* which is recommended against a Cough. It consists of Myrrh, Pepper, Castor, and Opium.

ATHENIPPON. The Name of a Collyrium, describ'd by *Scribonius Largus. 26.* which is also call'd *Diafmyrnes*, said to be useful in some Disempers of the Eyes.

ATHENIPPON PANCHRESTON, *ἀθηνίππον πάγχρου-σεν*, a Collyrium in *Galen, Lib. 7. ἥς κατὰ τόπους*, quite different from that of *Scribonius Largus*; whence it appears, that the Name *Athenippon* was common to many Collyria.

ATHER, *ἀθή*, as *Galen* says, signifies, in *Hippocrates*, both the prickly Part or Beard of Barley, as in *Lib. 2. de Morbis*, and also the Top of that Part in the Point of an Arrow, which is called the *πῶγων*, Beard, as in *Lib. 5. ἥς ἐπιδημιῶν*.

ATHERA, *ἀθήρα*, or *Athara*, as it is read in *Pliny, Lib. 22. Cap. 25.* signifies a thin sort of Pulticula, or Pap, fit to be supp'd: It is made of Wheat, or Zea, ground and reduced to a very fine Flour, and is proper for Infants. *Dioscorides, Lib. 2. C. 114.* tells us, that it is a forbile Liquor, made of very fine Flour of Zea, and may be used by way of Cataplasm. The Term is received among the *Greeks*, tho' *Pliny* says it has an *Egyptian* Original. *Gorræus*.

ATHERINA, a small Fish mention'd by *Aldrovandus*, which is very full of Bones, but otherwise very good Food, as being easy of Digestion, and supplying good Juices.

ATHEROMA, *ἀθήρωμα*, is a colourless Tumor, void of Pain, containing, in a membranous Coat, Matter like Pap, called *ἀθήρη*, intermix'd sometimes with hard and stony Corpufcles, and others like the Scrapings of Sulphur, and now-and-then like chew'd Bones of Chickens. *Leonidas* writes, that he sometimes met with things like Hairs inclosed within a very gross Humour; and *Philoxenus*, that he found Animals lodged in the Humour, which were like Gnats or small Flies.

An *ἀθήρωμα*, then, is oblong, imminent, hard, not easily impress'd by the Fingers, nor, after Impression, hasty to restore itself; which Marks distinguish it from the Meliceris, which is more round, low, wide, soft, and easily gives Way to the Touch, and as soon returns. *Gorræus*. See Tumor.

ATHLETICUS, *ἀθλητικὸς ἔξαι*, *Athletica Habitus*, an Athletic Habit of Body; so the Antients call'd that State of Body which was full, fleshy, and robust; for such was the Appearance of the *Athletæ*, or Wrestlers. They were not of this Constitution by Nature, but acquir'd it by the closest Application to the Gymnastic Art. Their principal View in this Study

was to take such Care of their Bodies, as that they might be well fortify'd with much and solid Flesh, and have their Veins full of the best and most fibrous Blood. Nor did they only aim at Strength, but Bulk and Ponderosity, the better to overbear and foil their Adversary. For this End, it was necessary to use much Food and Exercise: The first was of such a Nature, as not easily to be dissolved and dissipated, such as Beef, Pork, Bread, and Cheese; and what, says *Galen*, is extoll'd by all, the finest Wheat-flour, with Cheese-cakes, and other Dainties made thereof, which he, in his fifth Book of the Preservation of Health, mentions as provided for Wrestlers, to increase their Strength and Vigour. Their Bread was anciently, by a peculiar Name, call'd *Coliphium*, *ἀπὸ τῆς κώλης καὶ ἵψης*, from *Firmness of Limbs*. They observed no Time or Order in Eating or Drinking, that they might the better be enabled to bear all Changes. 1. They indulged themselves in Sleep and Gluttony, and roll'd in the Dust and Dirt: As to all honest and necessary Offices of Life, they were quite indisposed and useless. They who, by such Methods, had acquir'd this Habit of Body, were accounted excellent *Athletæ*, Wrestlers, and the Habit itself was call'd *ἀθλητικὴ ἔξαι*, an *Athletic Habit*. But it grew to a Custom in time to call every corpulent and robust State of Body by this Name, tho' not procur'd by the Athletic Art. Hence, in *Plautus, pugilice, pancratice, & athletice valere*, is put for *optime & firmissime*; and in *Celsus, Lib. 4. Cap. 6.* an Athletic Diet is put for a strong one, and such as is accommodated to repair the bodily Forces, as *Budæus* has observed in his Notes on the *Pandectæ*. But this Athletic Habit is censur'd by *Hippocrates* as preternatural, and not so good as a healthful one; for it is in continual Danger from the Fulness of the Vessels. Therefore it ought to be accounted *neutral* rather than *healthful*, because of the imminent Danger that attends it, except it be soon solved by a *καταρσις*, an *Evacuation*, or *Emptying* of the Vessels. On other Accounts, as *Galen* writes, *Comment. in Aphor. 3. Lib. 1.* it is faultless, because *Athletæ* abound with good Humours, and are in full Strength of Body; and, in his Book *de Atra Bile*, he owns their Blood to be very good. *Gorræus*. See GYMNASTICA.

ATHLIPTOS, *ἀθλιπτός*, from a Negative, and *ἀλίσβω*, to press. Uncompress'd. *Ἀθλιπτός ἐισβολή*, as *Galen* says, is an Expression used by some to signify the Approach of a feverish Paroxysm without Compressions. This kind of Fever, he says, at the very Beginning of the Fit, immediately raises the Pulse in Greatness and Swiftmess, and does not make its Approaches, as is usual with other Sorts, by Shakings and Shiverings, a Coldness of the extreme Parts, or outward Superficies, with a Vellication, Gravation, or Compression of the Stomach, and a small slow Pulse; for one or more of these Symptoms attend the Access of a Paroxysm, and soon after sometimes succeeds a Vomiting, which is a plain Indication of a Conflux of vicious Humours to the Stomach; and the Blood, retiring from the whole Superficies inward to the Viscera, must occasion Compressions, Obstructions, and Distensions of the principal Arteries. A Fever that does not make its Attack on the Patient by any of these Methods, is said to make an *ἀθλιπτός ἐισβολή*, "an Attack without Compressions." *Galen. de Præfag. ex Puls. Book 3. Chap. 7.*

ATHONOR. The same as **ATHANOR**.

ATHORECTOS, *ἀθώρηκτος*, not drunk. Sober.

ATHRIX, *ἀθεξ*, from a Negative, and *θεῖξ*, a Hair. Smooth, without Hair.

ATHROESMA, *ἀθροισμα*, from *ἀθροῖς*, collected together. This is a Term in frequent Use among the Physicians of the Empiric Sect. It signifies the entire Collection of all their Observations.

ATHROOS, *ἀθροός*, an Adjective, or *Athroon*, *ἀθροῖον*, an Adverb, in Medicinal Authors, imports copious, accumulated, or sudden, and is the Reverse to *by degrees*. It is apply'd to the Secretions, Nutrition, and other things.

ATHYMIA, from a Negative, and *θυμὸς*, Courage. Pusillanimity. In Medicinal Authors it usually signifies that Dejectedness, Despondency, and Despair, which frequently occur in the Course of Distempers, especially in some Constitutions.

ATINCAR, or **ATINKAR**, *Βοτρυ*. *Rulandus. Johnson.*

ATITARA, the *Brahman* Name for the *Palma humilis spinosa*. *Raii Hist. Plant.*

ATLAS. The first Vertebra of the Neck, mark'd *Fig. 9.* in *Table 8.* is call'd *Atlas*, because it supports the Head, as *Atlas* did the Globe of the Universe, according to the antient Fable. It has neither Body, nor spinal Apophysis. The Hole or Opening in it is much larger than in the rest. It looks like an irregular bony Ring, fill'd all round with Eminences and Cavities. It may be divided into two Arches; the anterior, or largest; and posterior, or smallest.

The anterior Arch is form'd by two thick lateral Portions, and a small curve middle Part, which, with the other, makes a Notch in the anterior Part of the great Cavity of the Vertebra. The lateral Portions may be look'd upon as a Body in two Parts, without which the first Vertebra would have been too weak to sustain the Articulations.

In the Middle of the convex Side of the posterior Arch, is a Tubercle, a little pointed, larger than the anterior Tubercle, and mark'd with Muscular Impressions on each Side, and on the upper and lower Edge. This Tubercle seems to be in the Place of the spinal Apophysis.

The transverse Apophyses of the first Vertebra arise from the Middle of the Breadth of the lateral Portions, being perforated perpendicularly at their broad Origins. They are much longer than those of the five Vertebrae below them, and, contracting gradually, they terminate in an obtuse Point, which is sometimes in a manner double, and mark'd on the upper and lower Side with Muscular Impressions.

The superior articular Apophyses are larger than any other Apophyses of the same Kind in the whole Spine. Their Situation is almost horizontal, and their anterior Extremities are turn'd more inward, that is, nearer one another than the posterior: They are, in a Word, every way proportion'd to the Condyles of the Os Occipitis.

The inferior articular Apophyses are less hollow, shorter, and broader. They are inclin'd laterally from within outwards, and from above downward. They are directly under the superior Apophyses; and thus the articular and transverse Apophyses, the Holes and lateral Portions on each Side, are all in the same Line.

There is a long Notch, or kind of Groove, between each superior articular Apophysis, and the posterior Arch of the bony Ring, reaching from the Hole in the transverse Apophysis backward; in which Notch the Vertebral Blood-vessels, in the natural State, make a Turn, before they enter the great Occipital Foramen. Sometimes, tho' very rarely, there is a complete Hole in the room of this Groove. There is another Notch, but more shallow, on each Side, between this Arch and the inferior Apophyses.

In the internal Circumference of the great Hole of this Vertebra, in the Middle of the great Notch, is a Cartilaginous Impression for the Articulation of the Axis of the second Vertebra; and on each Side of that Notch, between the superior and inferior Apophyses, there is another small Impression for the Insertion of a transverse Ligament, which secures the Axis in its Place. All round this Circumference, both toward its upper and lower Edges, there are many other Inequalities or Impressions. *Winslow's Anatomy.*

ATLE, an Egyptian Name for the Tamarisk. *Blancard.*

ATMOSPHERA, the Atmosphere. The whole Body of Vapours, and Air, surrounding the Earth. See AER. It is deriv'd from

ΑΙΜΟΣ, αἶμα, a Vapour, or Exhalation.

ΑΤΟCΙΑ, from α Negative, and τίτω, to bring forth Young, Sterility. *Blancard.* But ατοκοι, in *Hippocrates*, usually signifies Women who abstain from the Means of Fecundity, that is, the Embraces of the other Sex.

ΑΤΟCΙUM, a Name for the *Lychnis Sylvestris*. *Blancard.* But ΑτοCΙUM, ατοCιον, also signifies a Medicine which prevents Conception.

ΑΤΟΛΛΗ, a sort of Pap, made of the Meal of Mays and Water, which the Indians mix with their Chocolate.

ΑΤΟΛΜΙΑ, ατολμία, from α Negative, and τολμα, Intrepidity. Pusillanimity.

ΑΤΟΜUS, ατομ, from α Negative, and τέμνω, to cut or divide. An Atom. A Particle of Matter so small as to admit of no farther Division.

Caelius Aurelianus, Acut. Lib. 1. C. 14. giving an Account of the Philosophy of *Asclepiades*, says, it was his Opinion, that the *Primordia* of all Things were *Atoms*, which were not the Objects of our Senses, but were only perceptible by the Understanding. These *Atoms*, according to him, had of themselves no Qualities at all; for he asserted, that the Qualities of the Bodies which they compose depended upon the Order, Figure, Number, and Grandeur of many of these Particles join'd together: And when he was ask'd, How it happen'd, that Bodies possess'd several Qualities, since the *Atoms*, of which they were composed, possess'd none at all; he answer'd, That these Qualities depended upon the Order, Figure, Number, and Bulk of several of these *Atoms* united and join'd together; and, for illustrating his Opinion, drew a Simile from Silver, which is white when in the Lump, but black when filed down; and from the Horns of Goats, which are black when entire, and white when rasp'd down.

From this Account of the Philosophical Sentiments of *Asclepiades*, we plainly see, that they were somewhat different from those of *Epicurus* or *Democritus*, tho' all the three acknowledged *Atoms*; for the *Atoms* of *Asclepiades* were divisible, whereas those of *Democritus* and *Epicurus* were supposed incapable of being divided. I am of Opinion, that *Caelius Aurelianus*, by *Atoms*, means no more than the *ογκοι*, or *Molecules* of *Galen*. *Epicurus* acknowledged *Molecules* as well as *Asclepiades*; and *Lucretius*, who was contemporary with *Asclepiades*, also mentions something of the same Nature: But then *Epicurus* and *Lucretius* do not look upon *Molecules* as the first and constituent Principles of Bodies, but only as the first Ef-

fects produced by an Assemblage of *Atoms*; which, according to them, were the true and genuine Principles: Whereas *Asclepiades*, according to the Account of *Caelius Aurelianus*, seems to mean *Molecules* by his *Atoms*; tho', at the same time, he gives the Name of *Atoms* to the *Molecules* themselves. But we have some Reason to think, that this Author did not thoroughly understand *Asclepiades*, if we reflect upon a Passage of *Galen, de Theriac. ad Pison. Cap. 11.* where he says, "That *Asclepiades*, adhering to the Sentiments of *Democritus* and *Epicurus*, with regard to the Principles of Bodies, had only changed the former Names of Things, calling *Atoms* *Molecules*, and a *Vacuum* Pores." But *Galen* himself (*de Hippocrat. & Platon. Decret. Lib. 5. C. 3.*) establishes a formal Difference between the Sentiment of *Asclepiades* and that of *Democritus* or *Epicurus*, in these Words: "Whether, says he, the Bodies of Animals are composed of *Molecules* and Pores, as *Asclepiades* believed, or of small indissoluble Particles, as *Epicurus* imagin'd." The former of the above-cited Books is suspected not to be written by *Galen*; but the latter has undoubtedly him for its Author. The Author of that Book call'd the *Introduction, Cap. 9.* which is falsely ascrib'd to *Galen*, informs us, that the Elements of Bodies were, according to *Asclepiades*, *ογκοι δεξυσοι*, or *Molecules*, or small brittle Masses; and that it was probably this Brittleness which distinguish'd *Asclepiades's* Principles of Bodies from those of *Epicurus*, which were indissoluble and indivisible. The Principles of *Descartes* seem, in some Things, to agree with those of *Asclepiades*; and those of *Gassendi* with those of *Epicurus*. *Le Clerc.*

ΑΤΟΝΙΑ, ατονια, from α Negative, and τείνω, to stretch. Relaxation, Laxity, Debility, or Distemperature. This Word was much in Use among the Physicians of the Methodic Sect, who ascribed the Causes of all Distempers to Relaxation, Stricture, or a Mixture of these.

ΑΤΟΠΟΣ, ατοπος, from α Negative, and τόπος, a Place. It signifies absurd, or inconvenient. It is used by *Hippocrates, Aph. 52. Sect. 4.*

ΑΤΡΑ Bilis. See BILIS.

ΑΤΡΑCHELUS, ατράχηλος, from α Negative, and τράχηλος, the Neck; short-necked. It is used by *Galen*; and sometimes also signifies beheaded.

ΑΤΡΑCΤOS, ατρακτος, a Distaff, or the wooden Part of a Dart. This Word is sometimes used in *Hippocrates*.

ΑΤΡΑCΤΥLIS, Offic. Ger. 1008. Emac. 1171. Raii Hist. 1. 304. *Ατρακτυλιδις*, Dioscorides. *Atractylis lutea*, C. B. 379. *Atractylis flore luteo*, Park. 963. *Atractylis vera, flore luteo*, J. B. 3. 83. Chab. 353. *Cnicus Atractylis lutea dictus*, Hort. Lugd. Bat. 164. Tourn. Inst. 451. Boerh. Ind. A. 140. *Carduus luteus cretensis reticulatus, ramis fusum referentibus*, Hist. Oxon. 3. 160. *Carduo-Cnicus Atractylis dicta*, Pluk. Almag. 82. DISTAFF-THISTLE.

The lower Leaves of this Thistle are long and narrow, deeply cut in on both Sides, somewhat hairy, and but little prickly. The Stalks also are hairy, without any Prickles; but the Leaves which grow on them are very full, being smaller, but broader in Proportion than the lower Leaves, stiffer, and not so deeply cut in. The Stalk at the upper End is divided into three or four Branches, on which stand the Flowers, inclosed in stiff hard prickly Leaves, among which grow yellow fistular Flowers in scaly Calices; after which come whitish angular Seeds, like those of *Carthamus* inclosed in Down. It grows in warm Countries, as Italy and Greece, where the Women use the Stalks for Distaffs. It flowers in Summer.

The Leaves only of this Thistle are used, and those very rarely, though some Authors affirm they have the same Virtues with those of *Carduus Benedictus*; and it is particularly commended against the Stinging of Scorpions. *Miller's Bot. Off.*

It is aperitive, sudorific, and a good Antidote against Poison, being taken in Decoction. They extract by Distillation a Water, which hath the same Virtues of the Water of the *Carduus Benedictus*. *Lemery de Drogues.*

ΑΤΡΑCENE, Offic. *Viorna*, Ger. 739. Emac. 886. Mer. Pin. 125. *Viorna vulgi*, Herm. Flor. 2. 12. Merc. Bot. 1. 77. Phyt. Brit. 130. *Clematis sylvestris latifolia*, C. B. Pin. 300. Boerh. Ind. A. 46. Tourn. Inst. 295. Elem. Bot. 244. Dill. Cat. Giff. 143. *Clematis sylvestris latifolia sive Viorna*, Park. Theat. 380. *Clematis latifolia seu Atragene quibusdam*, J. B. 2. 125. Raii Hist. 1. 620. Synop. 3. 258. *Clematis Arthragene Theophrasti quibusdam*, Chab. 116. *Flammula sepium foliis integris*, Rupp. Flor. Jen. 54. Buxb. 114. TRAVELLERS JOY.

This Plant is to be found under Hedges, and flowers in the Month of July. The Whole of the Plant is used. Its Flowers, Bark, Seeds, and Root, are of a caustic Quality.

The Bark apply'd to the Skin raises Blisters. *Dale.*

ΑΤΡΑMENTUM SUTORIUM. Vitriol. Chalcantum. See VITRIOLUM.

ΑΤΡΑPHRAXIS, or ΑΤΡΑPHAXIS. A Name of the ΑΤΡΙPLEX, which see.

ΑΤΡΕCΕOS,

ATRECEOS, ἀτρεκέως, from ἀτρεκής, true, certain, has various Significations in *Hippocrates*; for the most part, as *Erotian* says, it is put instead of ἀκριβώς, exactly; and but seldom for ἀληθώς, truly, certainly. The Word is also variously expounded by the Interpreters of *Hippocrates*. In *Bacchius* it signifies ἀληθώς, ἀνίσταται, ἀκριβώς, truly, sufficiently, exactly. In *Philinus* it is ἀκριβώς only: And *Epicles* expounds it by σαφώς, ἐλικρινώς, openly, sincerely, perfectly. In *Prognost.* εὐδυναίει δὲ ὁλκισιν ἡμέρησιν ἔδεν τῶν ἀνθρώπων ἀκριβέστατον ἀτρεκέως, “none of these (Diseases) can be exactly calculated by whole “Days.” In *Prorrhet.* 2. ἀτρεκέως διαίωμεν, is one who observes a certain Method of Diet, and Way of Living. And again, in the same Book, ἀτρεκέστα δὲ καὶ ἐπὶ πλείστον χρόνον τὰς φυλακὰς αἰεὶ τῶν δεινότητων ποιεῖσθαι. “We must very “carefully, and for a long time, be upon our Guard against “the most formidable Accidents.” In his Book of Fractures, ἀτρεκές δὲ ἔδεν, “there is nothing certain.” In his Treatise περὶ ἁρθρῶν, κληῖς δὲ καὶ αὐτοῦ, ἢ μὲν ἀτρεκέως ἀποκαυλισθῇ, “a Fracture of the Clavicle, if it be wholly broken off like “a Stalk, that is, transversely.” Here *Galen* explains ἀτρεκέως by ἀκριβέστα, δι’ ὅλως, ὁλοκλήρως, exquisitely, wholly, quite, entirely.

Ἀτρεκέϊν, in *Hippocrates*, signifies an Asseveration, or affirming a Thing for perfectly known and certain. Thus in his second Book of Predictions, ἀμφοῖν δὲ τῶν γυμναζομένων καὶ τῶν ἀπὸ τῆς ἀτρεκείας τὰς λεγομένων, ὡς λέγουσιν οἱ λέγοντες, ἅτε δοκέω εἶναι, ἔτε, εἰ τις δοκέει, καλῶς δοκεῖν. “As for “what relates to those who fatigue themselves with Labour “and Exercise, there are Things asserted for certain Truths “by the Relators, to which I give no Credit myself; but, “however, leave every one at Liberty to believe them, if he “thinks fit.”

ATREMEAS, ἀτρεμέας, in *Hippocrates*, is put for ἀτρέμας, (from α Negative, and τρεμω, to tremble) placidly, quietly, remissly. Thus *Book* 5. *Epid.* ἐν ἀτρεμέας, that is, ἐν ἀτρέμας εἶχεν, he had no Rest, which in *Epid.* 7. is express’d and explained by ἡσυχία. Ἀτρεμέας is expounded, in *Hesychius*, by ἡσυχία, ἡσυχῇ, quietly, as ἀτρεμία is by ἡσυχία, ἀτρεμῶν by ἡσυχάζων, and ἀτρεμῆσαι by ἡσυχάσαι. By ἀτρεμῶν, *Hippocrates* means those Parts of the Body which are at Rest; such are understood to be those Parts which are without the Articulation in two Bones which meet at the Joint, as the Parts about the Thigh and the Leg with respect to the Knee. Ἀτρεμῶν, in *Erotian* upon *Hippocrates*, is expounded by ἡσυχῶν, resting, with an Eye to that Passage in his Book of Fractures, καὶ τὰ μὴ ἀτρεμῶν ἐν τῇ τῆς στήθους σχήματι, “those “(Bones) which remain not at Rest in the same Posture.”

ATRESIA, ἀτρησία, from α Negative, and τρέω or τρέω, to perforate; Imperforation.

ATRETI, ἀτρητοί, imperforate. Those are called so in either Sex, whose Anus or Urethra are not perforated; and Women, whose Vaginas are closed, have also this Name in Chirurgical Writers. See IMPERFORATIO.

ATRICES. Small Tubercles about the Anus, which recede, and return again, especially at first. They are by *Valesius de Taranta* reckoned among Condylomata and Fici. *Castellus*.

ATRICI. Small Sinuses in the Extremity of the Intestinum Rectum, which do not reach so far as to perforate into its Cavity.

ATRIPLEX. There are three Plants which usually go by this Name. The first is the

Atriplex, Offic. Chab. 305. *Atriplex alba hortensis*, J. B. 2. 970. Raii Hist. 1. 191. *Atriplex sive olus aureum*, Park. Parad. 488. *Atriplex hortensis alba*, sive pallide virens, C. B. 119. Hist. Oxon. 2. 606. Tourn. Inst. 505. Boerh. Ind. A. 2. 89. *Atriplex sativa alba*, Ger. 256. Emac. 325. *Atriplex spuria hortensis candida*, Volck. 53. WHITE ORACHE. Dale.

Dioscorides says this Plant is also call’d *Chrysolachanon*.

This is an annual Plant arising yearly from Seed. The Leaves are triangular, but longer than broad, with two Ears, or sharp Pieces, at the End next the Stalk, covered, especially when young, with a slippery Measles, which may be easily rubb’d off, of a palish-green Colour. The Stalk is angular and branch’d, growing about two or three Feet high, having the Leaves which grow on them somewhat longer than those below, and without Ears. On the Tops grow Spikes of herbaceous Flowers, of a greenish-yellow Colour, which are succeeded by blackish round Seed in flat Seed-vessels, of two round Leaves clapt together. The Seeds are of two Sorts, one smaller by half than the other, and blacker and more shining. There is one Species of this Orache, which has the Leaves, Stalks, and Seed-vessels, all of a purple Colour, differing in nothing else from the former. They are both cultivated in Gardens, being used promiscuously. *Miller’s Bot. Off.*

It was by the Greeks called Ἀτράφαξις, from ἀτρεμός and ἄνθος, because it soon grew to a great Height. There are three Species of it, the Red, the pale Green or White, and the blackish *Atriplex*. ’Tis a well known Pot-herb, and very often boiled with Cabbage; though generally ’tis more used by the Poor than the Rich and Luxurious. Yet *Ju. Joseph Joseph*

Manuduct. ad Vit. Long. p. 2. Cap. 8. informs us, that the Inhabitants of Brabant, the Low Countries, France, and Burgundy, esteem it so much, and use it so frequently, throughout the whole Summer Season, that there is scarcely ever a Dinner, or a Supper, in which the Garden Atriplex does not make a Part. It affords but little Nourishment, and is cold and moist; but the Humidity it contains is of a softening and mollifying Nature, since the Soup or Victuals among which it has been boiled, proves laxative. It is esteemed good for People of hot, choleric Constitutions, and such as are subject to Vomiting of Blood. But when eaten too plentifully, it renders the Mass of Blood watery, and brings on the Jaundice and Dropsies: For this Reason the Use of it was discarded by *Pythagoras*, as we are told by *Pliny*, L. 2. H. N. C. 20. The same Author also quotes *Dionysius* and *Diocles*, who both assert, that this Herb is very prejudicial to the Stomach, and lays a Foundation for numberless Disorders. The Herb itself, bruised and applied to the Parts in which Thorns or any other small Splinters have been plunged, extracts them, and cures the Wounds occasioned by them. When apply’d to the Navel, it dislodges and expels Worms. It is also used in mollifying Clysters, and in such Dressings as are intended to mitigate and allay Pain. Its distilled Water, mixed with Aloes, stops Hæmorrhages, and cures scald Heads. The Seeds are purgative, but often operate like an Emetic. The Country People in Lombardy make Pies of this Herb, in Conjunction with Butter and Cheese, which they look upon as excellent Food. In Virginia the Inhabitants prepare a Salt from the Stalks of this Herb, which they use in Dressing their Victuals. *Barth. Zorn. Botanologia.*

Dioscorides says the Seeds cure the Jaundice, if taken in Hydromel.

Atriplex sylvestris, Offic. J. B. 2. 972. Raii Hist. 1. 197. Chab. 305. *Atriplex sylvestris altera*, C. B. 119. Ger. Emac. 326. *Atriplex sylvestris, folio sinuato, saturate virente, spicâ rubrâ*, Hist. Oxon. 2. 604. *Atriplex sylvestris vulgarior sinuata*, Park. 747. *Blitum Atriplex sylvestris dictum*, Raii Synop. 63. *Chenopodium folio laciniato, comâ purpurascente*, Tourn. Inst. 506. Boerh. Ind. A. 2. 90. Buxb. 69. *Chenopodium folio sinuato candicante*, Dill. Cat. 106. WILD ORACHE.

The Leaves and Seeds are used as Emollients like the preceding. These, either raw or boiled, are laid to discuss Boils. Dale.

Atriplex olida, Offic. Ger. 258. Emac. 327. Raii Hist. 1. 198. *Atriplex fastida*, C. B. Pin. 119. Cod. Med. 16. J. B. 2. 974. Hist. Oxon. 2. 605. *Atriplex fastida & Vulvaria*, Chab. 307. *Atriplex olida, sive sylvestris fastida*, Park. Theat. 749. *Blitum fastidum Vulvaria dictum*, R. Synop. 64. *Chenopodium fastidum*, El. Bot. 406. Tourn. Inst. 506. Boerh. Ind. A. 2. 90. Dill. Cat. 106. Buxb. 68. *Atriplex Chenopodia fastida*, Hort. Monsp. 29. STINKING ORACHE. Dale.

The Stalks of stinking Arrach, or, as it is usually called, *Orris*, generally lie flat on the Ground, spreading about round the Root, striated or channelled, and of a whitish Colour; the Leaves are small and roundish, and pointed at the Ends, set alternately on the Stalks, and covered over, as is the whole Plant, with an unctuous Measles; the Seed grows inclosed in Spikes, of small green herby Flowers, being small, black and shining. The whole Plant has a strong fetid fishy Smell: It grows upon Dunghills, and waste Places.

This is an Herb particularly appropriated to the Female Sex, being aperitive and decostruent, and useful in uterine Disorders, good to promote the menstrual Evacuations, to expel the Afterbirth, and help Child-bed Purgations, to appease the Strangulation of the Womb, and take off Hysterical Fits. It is usually given in a Decoction. There is a Syrup kept in the Shops, made with the Juice of this Plant and Sugar. *Miller’s Bot. Off.*

ATROPHIA, ἀτροφία, from α Negative, and τρέω, to nourish. An Atrophy.

Morton defines the different Species of Consumptions thus:

A Consumption in general is a Wasting of the Muscular Parts of the Body, arising from the Subtraction or Colliquation of the Humours, and that either with or without a Fever, and it is either original or symptomatical.

An original Consumption is that which arises purely from a morbid Disposition of the Blood, or animal Spirits, which reside in the System of the Nerves and Fibres, and is not the Effect of any other preceding Disease; of which there are two Sorts, that is, an *Atrophy*, and a Consumption of the Lungs.

An *Atrophy* is an universal Consumption proceeding from the whole Habit of the Body, and not from any Distemper of the Lungs, or of any other Entrail, without any remarkable Fever, and is either nervous, or the Effect of Evacuations.

A nervous *Atrophy*, or Consumption, is that which owes its Original to a bad and morbid State of the Spirits, and to the Weakness or Destruction of the Tone of the Nerves; from whence, an Imbecillity, and an universal Consumption in the whole Habit of the Body, ultimately proceed from the want of a due Assimilation of the nutritious Juice; so from the Beginning

ning of the Disease there is to be found a want of Appetite, and a bad Digestion in the Stomach, from an imperfect Elaboration and Volatilization of the Chyle. Which Sort of *Atrophy* may justly be reckoned one of the fatal Symptoms of the Scurvy.

An *Atrophy* from Inanition is that which derives its Original from a preternatural Defect or Subtraction of the nutritious Juice, and that long and habitual, which differs according to the Variety of the Outlets formed in the Body either by Nature or Art, by which this precious Liquor either has or may run off, and be wasted.

A Consumption of the Lungs is an universal Wasting of the Parts of the Body, caused by some Distemper of the Lungs, as Infarctions, Swellings, Inflammations, and Exulcerations; and thence it is attended with a Cough, Difficulty of Breathing, and other Symptoms of the Breast; and accompanied with a Fever, which at first is slow and hectical, afterwards inflammatory, and at last putrid and intermitting.

A Symptomatical Consumption is that, which, though it immediately proceed from a preternatural and ill State of the Blood and Spirits, yet has a mediate Dependence upon some other preceding Disease, which impress'd that morbid Disposition on the Spirits and Humours.

A NERVOUS ATROPHY.

A Nervous *Atrophy*, or Consumption, is a Wasting of the Body, without any remarkable Fever, Cough, or Shortness of Breath; but it is attended with a Want of Appetite, and a bad Digestion, upon which there follows a languishing Weakness of Nature, and a wasting of the Flesh, every Day more and more. Which kind of Consumption I have sometimes observed in *England*, but most frequently amongst those that have lived in *Virginia*, after they have come over hither.

In the Beginning of this Disease the State of the Body appears œdematous and bloated, and, as it were, stuffed with dispirited Chyle; the Face is pale and squalid, the Stomach loaths every thing but Liquids, the Strength of the Patient declines so fast, that, before the fleshy Parts of the Body are evidently consumed, he is render'd feeble, and almost always confin'd to his Bed. The Urine also keeps not constant to any Colour, tho' for the most part it is high-colour'd, and but little in Quantity; yet it is sometimes, (as it frequently happens in Nervous Distempers) tho' seldom, pale and plentiful. But there is no considerable Fever to be discover'd either by the Pulse, or a Thirst, or Heat, how high-colour'd soever the Urine appears: So that the Pathognomonic Signs, or those which evidently manifest the Beginning of this Consumption, are, a Decrease of the Patient's Strength, and a Loss of Appetite, without any remarkable Fever, Cough, or Shortness of Breath, tho' in the Progress of the Distemper, when a Consumption of the Flesh has gradually affected the whole Habit of the Body, there is some Difficulty and Uneasiness in Breathing to be observed, as it happens to all those who are very weak.

The immediate Cause of this Distemper I apprehend to be in the System of the Nerves, and proceeding from a preternatural State of the Animal Spirits, and the Destruction of the Tone of the Nerves, whence I usually call this a *Consumption in the Habit of the Body*. For as the Appetite and Digestion are destroy'd, thro' the weak and infirm Tone of the Stomach, so also the Elaboration, Assimilation, and Volatilization of the nutritious Juices, are hinder'd, in the whole Habit of the Body, from the distemper'd State of the Brain and Nerves.

The Causes which dispose the Patient to this Disease, I have generally observed to be violent Passions of the Mind, the intemperate Drinking of spirituous Liquors, and an unwholesome Air, by which it is not surprising that the Tone of the Nerves, and the Temper of the Spirits, should be destroy'd.

This Distemper, like most nervous Diseases, is Chronical, but very hard to be cured, unless a Physician be called at the Beginning. At first it flatters and deceives the Patient; for which Reason it usually happens, that the Physician is consulted too late. It terminates in an Hydropical and Œdematous Swelling of the Body, especially of the lower and depending Parts: In which Case no Hopes remain of the Patient's Life, neither is there any thing more to be done for his Cure, than giving him some Ease, whereby his miserable Life may be protracted for some Days.

The C U R E.

The Cure, if attempted in due Time, consists in the convenient Use of Stomach Medicines, and such as comfort and strengthen the Nerves, such as Chalybeates, antiscorbutic, cephalic, and bitter Medicines of all Sorts: For Example,

Let the Patient, if his Body be costive, take every third or fourth Morning four Ounces of the bitter Decoction, with Sena; or every fourth Night, two Ounces of the Tinctura Sacra, or of our sacred Cephalic Tincture, made with the Species of Hiera Picra infused in Rue-water, Black Cherry-water, and strong Piony-water.

For his common Drink let him use Ale, in which a Bag of Cephalic and Antiscorbutic Ingredients has been suspended. An Hour before Dinner let him take thirty Drops of *Elixir Proprietatis* in a Draught of Wormwood White-wine. To the Region of the Stomach let there be applied the magisterial Stomach-plaster, with some Drops of the Chymical Oil of Cinnamon, and Oil of Wormwood. Or let the Stomach be fomented every Day with *French* Claret, in which Aromatic Bags of the Leaves of Mint, Wormwood, Cinnamon, Mace, Zedoary, Galangal, Cyperus-roots, and Calamus Aromaticus, have been boiled. If it be in the Summer, let him use the Chalybeate Waters; but if Winter, let him make Use of a Chalybeate Syrup, or our Chalybeate and Aromatic Wine, made with the Filings of Steel quenched three or four times in strong White-wine, and with Zedoary-roots, Galangal, Nutmegs, the best Cinnamon, Mace, Cubebs, Cloves bruised, and steeped in the same Wine. But for Chalybeates, I prefer *Mynsicht's* Extract before any other, which I order to be given for twenty or thirty Days, in the Form of a Bolus, or Pills. For Example:

Take of *Mynsicht's* Extract of Steel, half a Scruple; Balm of Gilead, (which in this Case is very proper and beneficial, because it is not a little grateful to the Stomach and Nerves) seven Drops; old Conserve of red Roses, a Dram: Mix them, and make them up into a Bolus, to be repeated every Day: Or if the Patient chooses to take Pills, let the Extract be made up into that Form, in the manner following:

Take of *Mynsicht's* Extract of Steel, half a Scruple; of Balm of Gilead, seven Drops; of *Haly's* Powder, six Grains; of the compound Powder of the Roots of Arum, four Grains; of Powder of Liquorice, as much as will make them into the due Consistence of Pills: Make the Mass into Pills of a middle Size; let them be gilded, and repeated once every Day.

Opobalsamum also by itself, as likewise Spirit of Hartshorn, and Spirit of Sal Ammoniac, are of Use in this Case, because they are good for the Nerves. For Example:

Let the Patient take eight or ten Drops of Opobalsamum, or Spirit of Hartshorn, in a convenient Quantity of Sugar-candy, twice a Day.

Let the Patient endeavour to divert and make his Mind cheerful by Exercise, and the Conversation of his Friends: For this Disease almost always proceeds from Sorrow and Cares. Let him also enjoy the Benefit of an open, clear, and very good Air, which very much relieves the Nerves and Spirits. And because the Stomach in this Distemper is principally affected, an agreeable Diet will be convenient; and the Stomach ought not to be too long accustomed to one Sort of Food.

Of an ATROPHY from INANITION.

To this sort of original Consumption from the whole Habit of the Body, belongs also another kind of Consumption, arising from the Impoverishment of the Blood, occasioned by the preternatural Subtraction and Loss of the nutritious Juice. Whence the whole Mass of Blood, being deprived of the nutritious and balsamic Juices, grows too hot, affording none or very little Nourishment to the muscular Parts; and hence there follows a Consumption of the whole Body, and an hectical Heat fixed in the whole Habit, without any considerable Cough, or Difficulty of Breathing, or any other remarkable Affection of the Lungs, at least, in the Beginning of the Distemper. But it must be confessed, that, in the Progress of it, the Lungs seem to be, in some measure, affected, especially where the preternatural Evacuations, which are the Cause of the Distemper, are stopped by Art without any Correction of the whole Mass of Blood, by which means it may recover a natural balsamic Nature, and such as renders it fit for Nourishment. In this Case it is not surprising, that the hot and sharp Serum of the Blood continually passing, after the Passages where it used to be evacuated are stopped, through the soft and glandulous Substance of the Lungs, at last should stuff, inflame, and in the Progress exulcerate them; whereby it comes to pass, that this Consumption, which was originally in the Habit of the Body, a little before Death ends in a Consumption of the Lungs, with a Cough, Difficulty of Breathing, and other Pathognomonic Signs of that Distemper. And therefore I have often observed, that if the Appetite and Digestion are not restored by such Medicines as have a peculiar Quality of altering the Blood, and strengthening the Stomach, so that the Mass may be supplied and filled with a sweet and balsamic Juice, the Consumption is not cured; but at last is changed from a Consumption in the Habit of the Body, to a fatal Consumption of the Lungs.

And this Consumption is indeed akin to the Nervous Consumption before-mentioned. For as in that, which proceeds from

from a preternatural State of the nervous Juice and Spirits, the nutritious Chyle which is continually carried into the Blood, is rendered less fit for the Nourishment of the Parts; and thence, as the Mass of Blood is loaded with stale and dispirited Juices, such as are unfit for Nutrition, and there being no Demand for fresh, a Loss of Appetite ensues, and a Sickness of the Stomach, and consequently a Consumption of the whole Body, and at last a fixed hectic and colliquative Heat in the solid Parts, from the Heat of the Blood and Spirits: So in this kind of Consumption, the nutritious Juices running off from the Mass of Blood with a full Stream, the muscular Parts of the Body, being thus deprived of their due Nourishment, fall into an *Atrophy*; whereupon likewise the Mass of Blood which remains, for want of new balsamic Chyle, is not only dispirited, and rendered unfit for Nourishment, but a preternatural, fixed and hectic Heat is kindled, not only in the Blood, but also in the Spirits, and all the solid Parts; whereupon there follows a Drought and want of Appetite. This kind of Consumption is that, which we are now in the first place professedly to treat of. But because the Cure of this kind of Consumption is to be altered, according to the Variety of the Evacuations, which are the Cause of it, I shall add nothing concerning the general Cure of it, but refer that to the several kinds of Evacuations, which are the Cause of this Distemper, to be spoken of under their proper Heads.

The things which cause these Consumptions, according to *Morton*, are

An Hæmorrhage.

A Gonorrhœa, or Fluor Albus.

Abcesses and Ulcers.

Giving Suck beyond what the Strength of the Nurfes can bear.

A Dyfentery, or Diarrhœa.

A Diabetes.

A Salivation.

A Dropsy.

Profuse Sweats.

Consumptions from all these Causes will be treated of under their respective Articles.

Besides the Causes above-mentioned, this general Consumption, proceeding from Evacuations, frequently depends upon other Distempers; and therefore it may justly be called a general *Symptomatical Consumption*: As first, upon a Lientery, that is, when the Faculty of the Stomach, which makes the Chyle, is injured by a preternatural Disposition of the Spittle, and the ill Temper of the nervous Liquor: Whence it comes to pass, that the Blood and Habit of the Body (since the Food that is taken is carried down through the Intestines, and comes away as it went in, without any Alteration) cannot receive any Recruits from the Food; and from hence there necessarily follows an *Atrophy* caused by Inanition.

Many times this general Consumption proceeds from a preternatural Alteration, or Obstruction of the Gall and Pancreatic Juice, or else of the Juices, which naturally use to be separated by the small Glands, planted through the whole Duët of the Intestines, and which serve for the Separation of the excrementitious Parts of the Food from those which are nutritious. Hence the chylous Parts of the Food, which pass out of the Stomach, slipping by the small Orifices of the Lacteals, are thrust together with the Excrements by Stool; and that either white, and as such are evidently chylous from the Defect, or preternatural Disposition of the Bile, (which is the proper Menstruum for separating the Chyle) as it commonly happens in the Jaundice, together with a great Weakness of the Body, and wasting of the Flesh; or else in yellow Stools, as in the Cœliac Passion, which either is from an Obstruction of the Pancreatic Juice, and that which is separated by the Glands of the Intestines, or happens from the Depravation of the Nature of those Juices. In the first Case, the Urine is much tinged with a yellow, or Jaundice-colour; but in the latter, it is quite contrary. In both of them, the Chyle not being separated from the excrementitious Parts of the Food, the Blood is deprived of its due Recruits; upon which I have often observed, that an *Atrophy*, or Consumption, and that a very acute one, has seized the Patient.

Lastly, this general Symptomatical Consumption is sometimes caused by many and large scrophulous Kernels preternaturally situated in the Mesentery, by which (the Lacteals being streightened as with a Thread, or being compressed) the Passage of the nutritious Liquor, which is separated in the Intestines, and taken in by the Mouth of the Lacteal Vessels, into the Mass of Blood, is either totally, or in part, hindered; in which Case the Stools are large and chylous, the Belly grows hard, and is swell'd; but the Urine flows in a very little Quantity, yet keeps its natural Colour; thereupon, the Blood not being every Day replenished with fresh Chyle, the muscular Parts are deprived of their due Nourishment, and daily become thin, and at last are wasted to the degree of a Marasmus; though the Appetite at the same time be keen, and the Patient continues

always free from any thing of a Fever; an Instance of which kind I once met with in a Boy about four Years old.

All these Symptomatical Consumptions are evidently incurable, unless a particular Respect be first had to the Distempers upon which they depend; but if these are once removed by Art, this kind of Consumption ceases of its own Accord; and therefore the Cure of this Consumption is to be sought for in another Place, that is, in the Cure of those Distempers which are the Cause of it.

ATTA, ἄτα, Father, an ancient *Pelasgic* Word, in another Dialect, Ἀπα. ἰπιδεγμα τιμωρικῶν νεωτέρων παλαιότερον, *Didymus*. "A Compellation of Honour given by a younger Person to an elder." We say *Atta* to an old Man, by way of Reverence, as if we called him *Aous*, "Grandfather." *Festus*. Children, in Lisping, doubled the Letters, as ἄτα, τᾶτα, τᾶτα, or τετα. ἄπα, πάπα, πάπα, or πάππῳ, ἄμμη, μᾶμμα. The *Egyptians* said ἄτ, τᾶτ, and ᾠθ. Our *Britons* (Welsh) call Father and Mother by no other Names but *Tat* and *Mam*.

ATTA is also a Name for such as have an infirm Tread in their Walk, *LIMBERS*. "Atta, one who walks on the Fore-part of his Feet." *Isidorus*. *Atta*, ὁ τοῖς ποσὶν ἀρχόμενος πειπαῖν, *Vet. Gloss.* that is, "who first sets his Foot to the Ground," from the Verb ἄττω, or ᾠω, to hop, or limp, which is a Contraction from αἰωω, or αἰττω. The following Passage of *Festus* has also a Relation to this Matter: "The *Attæ*, says he, are such as, on account of some Defect in their Legs or Feet, stand upon their Soles, and seem rather to touch the Ground than walk; hence *Quintus* the Poet, who was remarkable for this Defect, got the Nickname of *Atta*, which always stuck by him."

ATTAGAR, a Stone. *Rulandus*.

ATTAGEN, ἄταγᾶς, or ἄταγῶν, an *Asian* Partridge, commonly called a *Francolin*. The *Greeks* called it λαγῶπις, (whence *Lagois* in *Horace*) *Leporipes*, or *Leporarius*, "Hare-foot," because of its downy Feet, wherein it resembled those of a Hare. *Pliny* calls it *Attagenæ Phrygia*. To me, Ἀταγᾶς, seems to be a *Phrygian* and *Pelasgic* Word, and to sound like Ἀτῆα γᾶς, "the Father, or Chief, of the Country;" for this Bird was in principal Esteem for its delicious Savour. But Ἀτῆα γᾶν, would be more like the *Phrygian*; γᾶν, or γᾶνῳ, is the *Hebrew* גַּן *Gan*, the *Syriac* גַּנָּא *Ganna*, and the *Arabic* *Ginna*, which was the Name they had for their verdant Garden, or Paradise. In the same Form of speaking did the *Phrygians* call a He-goat ἄταγῶς, according to *Arnobius*, as being ἄτῆα γῶς, "the Father of the Goats;" for the *Scythian* *Cos* is our Goat, and the *Hebrew* גַּז γִזִּים. Of the *Attagen* thus speaks *Martial*:

*Inter Sapoies fertur Alitum primus
Ionicarum Gustus Attagenarum.*

And *Aristophanes* in *Athenæus*;

Ἀταγᾶς ἡδίστον ἐστὶν ἐν Ἑπινικίοις κρέας.

"The Flesh of an *Attagen* is the sweetest that is dressed at publick Feasts."

Horace also;

*Non Asra Avis descendat in Ventrem meum,
Non Attagen Ionicus.*

Pliny also says thus of it: *Attagen maxime Ionicus celebratur, vocalis alias, captus obmutescens, quondam existimatus inter raras Aves*: "The *Attagen* of *Ionia* is the most celebrated; it makes a Noise when at Liberty; but is mute after it is taken. Formerly it was reckoned one of the rarest Birds." Ὁ ἄταγῶν κοινιστὶς ὄρνις τῶν γὰρ ὀρνίθων ὅσοι μὲν μὴ πηλίκοι, ἀλλ' ἐπίγμοι, κοινιστοί. "The *Attagen* is a pulverarious Bird; for all Birds that make little Use of their Wings in flying, but keep themselves upon the Ground, are called *pulverarious*," *Athenæus* tells us, that the *Attagen* is a little bigger than a Partridge, and thus describes its Colours: "Ὀλῶ καλαγερτῶ τὰ περὶ τὸ νῶτον, κεραμῶ τὴν χρεῖαν, ὑποπυρίζων μᾶλλον." "It is all over the Back of the Colour of a Tile, only somewhat more upon the Red."

By all these Circumstances, the *Attagen* must be the same as our Red-game, which is thus distinguished:

ATTAGEN, *Offic. Aldrov. Ornith.* 2. 75. *Bellon. des Oyse*, 241. *Jonf. de Avib.* 41. *Gesn. de Avib.* 199. *Attagen Aldrovandi, Francolino Italicorum*, *Rall Ornith.* 174. *Ejusd. Synop. A.* 54. *Attageni Aldrovandi seu Francolino Italicorum*, *Will. Ornith.* 125. *Lagopus altera Plinii. An Gallina Corylorum*, *Schw. A.* 277. THE GOR-COCK, MOOR-COCK, or RED-GAME.

Oribasius says, *Medic. Collect. Lib.* 1. *Cap.* 3. that the Flesh of this Bird is best in Autumn. And in the same Collections, *Lib.* 2. *Cap.* 42. he says, it is of very easy Digestion. And *Actius* in this agrees with him.

Trallian recommends this Bird in a Phthisis; *Galen*, in Nephritic Complaints; and *Avicenna* believed it increased the Seminal Secretions.

The Inside of the Gizzard of this Bird is extremely fragrant when fresh kill'd.

The Red-game lives principally on Vegetables, and uses but little Exercise, scarcely ever being on the Wing, unless to avoid Danger: Hence it does not abound with highly exalted Salts. It is a very agreeable and wholesome Food.

ATTALUS, and ATTALICUS, are Names appropriated to some compound Medicines, mentioned by *Galen*, and transcribed from him by others.

ATTELABUS ARACHNOIDES.

ATTELABUS ARACHNOIDES (*Aldrov. Jonst.*).

This is an aquatic Insect, which partakes of the Nature of the Spider and Grasshopper: The Head resembles a Grasshopper; the Eyes are prominent. The other Parts resemble a Spider, but it has but six Feet; it swims on the Water, or creeps upon the Earth. It is Ash-coloured.

It is esteemed resolutive, when externally applied. *Lemery des Drogues.*

It is a sort of Locust.

ATTENUANTIA.

Attenuating or inciding Medicines are of the utmost Importance in Physic, as a little Reflection upon their Natures, Qualities, and Manners of Operation, will easily convince us. To this Class belong the Roots of White Burnet, Arum, Sweet-flag, Asarabacca, Wild-radish, Elecampane, Succory, Florentine Orris, Solomon's-seal, Swallow-wort. The Herbs German Leopards-bane, Brook-lime, Scurvy-grass, Water-cresses, Indian Cresses, Dittander, Rosa Solis, Fumitory, Marsh Trefoil, the Lesser Centaury, Hyssop, Germander, Chervil, Carduus Benedictus, the Lesser House-leek, all the Species of Garlicks, Onions, and Leeks; Wood of Guaiacum with its Bark; of Spices, Pepper and Ginger; the Seeds of Mustard, Scurvy-grass, and Cresses; the Gums Ammoniac, Galbanum, Sagapenum, Opopanax, Myrrh, and Benzoin; of Chymical and Pharmaceutical Preparations, Mercurius Dulcis, Æthiops Mineral, Flowers of Sulphur, alkaline fixed Salts, and the Salts of Vegetables prepared by Incineration, but especially the Salts of Tartar and Wormwood; Salts also of a neutral Quality, such as the Digestive of Sylvius, my own aperient Salt, Sal Ammoniac, Sal Polychrestum, Epsom and Sedlitz Salts, vitriolated Tartar, the Terra foliata Tartari, otherwise called Tartarus Regeneratus, the Arcanum Duplicatum, a Solution of Crabs-eyes, Nitre and Sal Ammoniac. Volatile Substances also, such as the volatile Salt of Sal Ammoniac, and the vitriolous Spirit of Sal Ammoniac; as also Oxymel of Squills, acid Tincture of Antimony, Essence of Gum Ammoniac, and of Gumy Pepper; Resin of Guaiacum, and the Syrups of Tobacco, Hedge Mustard, and the Pecula of Aron. Medicated Springs also belong to this Class, which, besides their diluting and aperient Natures, are also possessed of an attenuating Quality, such as the acidulated Springs of Egra and Sedlitz, and the Caroline Waters; as also Infusions in the Form of Tea, which in Consequence of the copious watery Principle they contain, possess a remarkably attenuating Quality, and are very efficacious in separating and disjoining coalescent Molecules; and, in the last place, to this Class of Medicines belongs sweet Whey, which, in Consequence of the sweet and subtile Salt with which it is impregnated, is of a highly detergent Quality, and wonderfully efficacious in opening the Excretory Ducts.

Of the above-mentioned Substances, some act upon the fluid, and others upon the solid, Parts of the human Body. Such as operate upon the Fluids by immediate Contact, are very few in Number; and indeed this Effect is only to be ascribed to watery Diluents, which are, without Doubt, of singular Efficacy in colliquating the glutinous and viscid Humours; and to alkaline, fixed, volatile, and nitrous Salts, which, if mixed with the inspissated Blood and Humours, especially when in a liquid Form, colligate and attenuate them in so powerful a manner as to be perceptible even to the Eye. All the other attenuating Medicines mentioned, act only upon the Solids by increasing their Tone, augmenting their Strength, heightening their contractile Force, and adding to the Elasticity and systolic Motion of the Vessels, by which means they press and shake their contained Juices more forcibly, and accelerate their progressive and intestine Motions; so that the tenacious and viscid Humours, being thus frequently and forcibly carried through the minute and capillary Vessels, are by that very means divided and broken into smaller Globules; a Circumstance absolutely necessary for preserving their due Degree of Fluidity. Among those attenuating Medicines which operate upon the Solids, some produce their Effects by means of a considerably fixed and acrid Salt; such as the Roots of Arum, White Burnet, Asarabacca, Florentine Orris, and Solomon's-seal; the Herbs German Leopards-bane, Dittander, Rosa Solis; as also Pepper and Ginger, which, though of a pungent Taste, yet neither yield an acrid volatile Oil, nor a Water of an acrid Taste,

when subjected to Distillation with Water, which sufficiently proves their fixed Nature. Others again of the attenuating Medicines, which operate upon the Solids, produce their Effects by means of an acrid subtile volatile Salt, such as the Wild-radish, Elecampane, Cresses, Scurvy-grass, Mustard, and all the Species of Garlicks, Onions, and Leeks. Some Attenuants also operate by means of a neutral stimulating Salt, of which Kind are those neutral Salts, whose Acrimony, and irritating Quality, are not only discovered by the Taste, but also by their proving purgative or diuretic, when exhibited in pretty large Doses. Other Attenuants again, operate by means of an acrid Salt, impregnated with a large Quantity of sulphureous Particles, which is evidently the Case with Gum Ammoniac, Sagapenum, Opopanax, as also Guaiacum and its Resin, which, besides an acrid Salt, contain also an Oil, which they yield in great Abundance when subjected to Distillation. And, in the last place, some Attenuants operate by means of a subtile penetrating and metallic Salt, such as Mercury, especially Mercurius Dulcis, and Æthiops Mineral.

Attenuating and inciding Medicines are of very extensive Use in the Practice of Physic, and come under different Denominations, according to the different Effects they produce. Thus, when tenacious and viscid Juices not only stagnate in the Cavities of the Vessels, but obstruct the minute Ducts of the Viscera, and Emunctories, these Medicines by their inciding and attenuating Quality, discharge the Humours, and remove the Obstructions; for which Reason they may not improperly be called Aperients. They also deserve the Name of Antiscorbutics, and Sweeteners of the Blood; for since the Purity and proper Temperament of the vital Juices depend upon the due Secretion and Excretion of every thing superfluous and recrementitious in the Constitution; and since the necessary Degrees of Secretion and Excretion are intercepted by the minute Ducts of the Glands and Emunctories being blocked up by thick and viscid Juices; 'tis therefore obvious, that such Medicines as attenuate the inspissated Humours, and remove the Obstructions, must be Sweeteners of the Blood, and excellent Remedies against the Scurvy, in which the Humours have evidently lost their due Temperament, and are become impregnated with heterogeneous, viscid, saline, sulphureous, and acrid Particles. Now, since attenuating Medicines produce so great a Variety of different Effects, 'tis highly proper we should know what Species of Attenuants are best adapted to such and such particular Disorders.

The Intention therefore of dissolving and attenuating viscid Crudities in the Stomach, and Primæ Viæ, is excellently answered, by the Roots of Arum, White Burnet, and Sweet-flag; by Pepper, Ginger, depurated Sal Ammoniac, vitriolated Tartar, Arcanum Duplicatum, the digestive Salt of Sylvius, my aperient Salt, Salt of Wormwood, the simple Spirit of Salt, or Spirit of Salt dulcified, as also the aperient Tincture of Mæbius. And when crude and unconcocted Humours are to be evacuated by Stool, this Intention is very well answered by the neutral Salts, especially those of Sedlitz and Epsom, and the Sal Polychrestum exhibited in pretty large Doses, and in Conjunction with a sufficient Quantity of a watery Vehicle.

When viscid Humours, occasioning Disorders of the Breast, are to be attenuated and expectorated, the Intention is most effectually answered by the Roots of Elecampane, and Florentine Orris, by Rosa Solis, Hyssop, Germander, Maiden-hair, Gum Ammoniac, Myrrh, Benzoin, Sulphur, Balsam of Peru, Nitre prepared with Antimony, the Terra foliata Tartari, otherwise called Tartarus Regeneratus, Oxymel of Squills, a Solution of Crabs-eyes in distilled Vinegar, and the Syrups of Tobacco and Hedge-mustard.

When the Mass of Blood is tainted with thick and tenacious Sordes, and the Emunctories are by that means obstructed, and the Humours contaminated by a saline, sulphureous, and scorbutic Dyscrasy, the most efficacious of the Attenuants are, the Root of the Wild Radish, Scurvy-grass, Water-cresses, Indian Cresses, Dittander, Brook-lime, the lesser Centaury, Marsh Trefoil, Carduus Benedictus, Fumitory, the lesser House-leek, Mustard, Gum Ammoniac, Sagapenum, Myrrh; the Oil of fix'd Nitre per Deliquium, Oil of Tartar per Deliquium, a Solution of Nitre, my temperate Elixir, acrid Tincture of Antimony, Essence of the Woods, Spirit of Sal Ammoniac, Salt of Wormwood, with Citron Juice; as also the Salts of the medicated Waters of Sedlitz and Egra,

When grumous or coagulated Blood, occasioned by Blows or Contusions, is to be attenuated, and again dissolved, the Intention is admirably answer'd by the Root of Solomon's Seal; by the Herbs German Leopard's-bane and Chervil, Vinegar distill'd with Crabs-eyes, the Terra foliata Tartari, and Nitre prepar'd with Antimony.

In Cases where the Lymph has acquir'd a preternatural Thickness and Viscidity, especially from a Venereal Taint, the Curative Intention is best and most effectually answer'd by Guaiacum, Soapwort, acrid Tincture of Antimony, Mercurius Dulcis, and Æthiops Mineral, which, when cautiously and

and skilfully used, is of singular Efficacy in resolving and attenuating the viscid Juices impacted on the Glands and Liver. *Hoffman, Vol. I. Sect. 2. Cap. 4.*

ATTENUATIO, Attenuation. See ATTENUANTIA.

ATTICUS, Ἀττικὸς. Attic, of Attica, Athenian. The Attic Honey is frequently mention'd by Medicinal Writers as the best.

ATTICUM, Ἀττικόν, should be the Name of a Plaister, by the Use Hippocrates makes of it in the fourth Book of Epidemics, where he says, a certain Person had an Ulcer in the Leg, and anointed it with Atticum, Ἀττικόν. Ἀττικόν is also sometimes used as an Epithet for ἀσκήν, or χύτην, and signifies an Attic Vessel.

Attic Wax is mention'd by Scribonius Largus.

ATTILUS. A River Fish, very common in the Po, not unlike the Sturgeon. The Flesh is flabby, and not very agreeable.

ATTINCAR VENERIS. The Albification of Copper, in order to transmute it into Silver.

ATTINGAT. The same as Flos Æris. See Æs.

ATTINGIR, An Earthen Box. *Rulandus.*

ATTONITUS MORBUS, An Apoplexy. See APOPLEXIA.

ATTRACTIO, Attraction, Drawing.

ATTRACTIVUM, Attractive. *Paracelsus* gives the following Account of his SPECIFICUM ATTRACTIVUM.

It attracts, says he, every thing superfluous in the Body, and draws out of it every thing of a hurtful Quality; for some attractive Specifics are in their own Natures so exquisitely calculated to operate on Flesh; that they will attract an hundred Pounds of it, in the same manner as a Loadstone does Iron. It happen'd in our own Days, that an Attractive of this Kind drew a certain Man's Lungs up into his Mouth, by which he had the Misfortune to be suffocated. Another was also so unlucky, as to have the Pupil of his Eye drawn from its natural Situation to his Nose by the same Means, after which there was never any Possibility of restoring it; for there are not only Attractives accommodated to Iron, but also to Wood, Herbs, Flesh, and Water; for I myself saw a Plaister which attracted as much Water as was sufficient to fill a Cistern; and the Water flow'd from it just as if it had fallen from the Top of some House.

In like manner, Lead, Tin, Copper, Silver, and Gold, may be attracted by certain Compositions of Attractives; and, by these very Attractives, Branches may be torn from Trees; and, which is still more surprising, a Cow may be carried up into the Air.

For this Reason we are to apply some Medicines of an attractive Quality, in order to extract from the Body every thing of a hurtful and corrupt Nature, that what is prejudicial may be separated from what is profitable. These Attractives are to be apply'd upon an Emunctory in the Part affected, or upon an Ulcer which supplies the Place of an Emunctory; or, if a Gland should present itself, it is to be open'd like an Emunctory; for I know from my own Experience, that an Attractive of this Kind has extracted and eliminated the Matter, which occasioned a Plague, in a more effectual manner than on this Occasion it may seem proper to mention. No Patient, however formidable his Distemper might have been, ever died by having this Medicine administer'd to him. The following is a Receipt for preparing this Attractive:

Take of the Quintessence of each of the Gums, one fourth Part; of Magistery, one half that Quantity; of fiery Element of Amber, one Pound; of fiery Element, Mastich and Myrrh, each one fourth Part and an half; and of Element of Scammony, ten Ounces. Of all these make a Cerate, with Wax, Gum Tragacanth, and Turpentine, to be used in the Manner above directed. *Paracelsi Archidox. Lib. Sept.*

Notwithstanding the Gravity and Air of Importance which it is sometimes expected a Physician should assume, as there is no Crime, or even Indecency, in Laughing, I have inserted the preceding Paragraph from *Paracelsus*.

Attractivus is also apply'd to any Remedies to which the Faculty of drawing or attracting is attributed.

ATTRACTORIUS, Attractive; endow'd with the Power of attracting.

ATTRAHENS, is used much in the same Sense as the preceding.

ATTRITA. Galls from Attrition, or rubbing one Part against another. See INTERTRIGO.

ATTRITIO. A superficial Galling of the Feet, Thighs, or any other Part, by Walking, or otherwise.

Attrition is also a Word much us'd in Medicine and Philosophy, to express the rubbing two Bodies against each other, so as to wear away their Surfaces, or to excite Heat, without any Loss of Substance. Or it is in general a rubbing together.

ATTY-ALU. The Indian Name for the Picur Mola-VOL. I.

barenfis, folio oblongo acuminato, fructu vulgari æmulo. Raii Hist.

ATUREB. *Rulandus* explains this, if it may be call'd an Explanation, by *Vitrum Azazeze*; but does not tell what Azazeze is; neither does *Castellus*.

ATYPOS, ἀτυπός, from α Neg. and τυπός; a Form, or Tenor. Erratic, irregular. It is apply'd to Diseases which have no Regularity in their Periods. It also imports a Deformity of the Limbs: But ἀτυποί, Atypoi, from α Neg. and τυπώω; to strike, signifies People who, by some Defect in the Organs of Voice, cannot strike the Air so as to articulate certain Sounds.

ATZOYATL. The Mexican Name for the *Mirabilis Mexicana*, the Marvel of Mexico, which Ray says is a very different Plant from the Marvel of Peru. *Raii Hist. Plant.*

AVACCARI.

Avaccari, (*Garcia*) is a little Indian Tree, the Leaves, the Flowers, and the Fruit of which resemble Myrtle, but a great deal more astringent. It grows on Mountains, and in the Province of Malabar.

They esteem this very much in the Country where it grows, for inveterate Dysenteries proceeding from a cold Cause. *Letmery des Dragues.*

AVANACU. See CADEL-AVENACU.

AUANSIS, ἀύανσις, from αύω, to dry. Exsiccation in general, but properly of Plants thro' Age.

AUANTE, ἀύαντη, or ἀύαψή, derived from the same Verb as the preceding. It may be translated, the dry Disease. *Hippocrates*, in his second Book de *Artibus*, gives the following Account of it.

The Patient can bear neither Abstinence nor Eating. When Fasting, he has a Rumbling in his Belly, with a gnawing Pain in his Stomach, and vomits up Variety of Matters, as Bile, Saliva, Phlegm, and an acrimonious Matter; and after Vomiting seems to be a little easier. After Eating he is molested with Eructations, and an inflammatory Heat and Redness. He always fancies he has occasion to make a plentiful Stool; but, when he is upon the Seat, discharges nothing but Wind. He is afflicted with a Pain of the Head, and a Sense of Pricking as with Needles, in different Parts of his Body. His Legs seem heavy, and grow feeble and extenuated, and he becomes very weak.

In this Case, a Purge must be first given, and afterwards a Vomit, and the Head in particular ought to be purged. The Patient is to abstain from sweet, oleous, and fat Kinds of Food, and not indulge himself in Drinking. After Meals, provoke Vomiting with the Juice of *Pistia*; and, if the Season will permit, after drinking Asses Milk, or Whey, let him take a Vomit or a Purge, as the Physician shall think most suitable to his Case. If it be Spring or Summer, let him bathe in cold Water: if it be Autumn or Winter, let him use Unctions, Walking, and moderate Exercise; but if he be too weak to bear Exercise, let him take a Journey: His Diet must be cooling and laxative; but if the Belly be costive, you are to open it with an emollient Clyster. This is a Chronic Disease, and does not forsake the Patient till Old Age, and then either takes its Farewell, or accompanies him to his Grave. *Hippocrates, περὶ νόσων, Lib. 2.*

This Distemper is, by *le Clerc*, placed among those which have not preserved the Name by which *Hippocrates* called them, but which may be known by the Accidents which accompany them. This, by the Description, the above-mention'd Author takes for Hypochondriacism.

AVANTURINE, is a reddish or yellowish Stone, cover'd all over with Sparkles which resemble Gold, which make it look agreeable to the Sight. There are two Species of these, one natural, and the other artificial: The natural is found in many Parts of France. They mix it in Powder, which they put upon Paper to render it shining.

The artificial is made by Vitrification, or by mixing Sparkles of Copper with Glass, whilst it is in Fusion.

It is used by Enamellers, but I don't know, that it is employ'd in Medicine.

AVARAMO TEMO. The Name of a siliquose Tree, which grows in the *Brasil*.

The Bark is externally of a cineritious, and internally of a deep-red Colour, and is the only Part of the Plant used by the Skilful for Medicinal Purposes, tho' the same astringent Qualities are by some ascribed to its Leaves; for the Bark, which is of a bitter Taste, whether reduc'd to a Powder, or boil'd and us'd by way of Fomentation, happily cures inveterate and obstinate Ulcers, and has been found to cure Cancers themselves by means of its remarkably cleansing and drying Nature.

Besides these Purposes, 'tis also made Choice of on account of its effectually astringent Quality, for Baths design'd to strengthen and invigorate the muscular Parts of the Body, when weaken'd, or too much relax'd. Ray says it is much used by the Courtezans for contracting the Pudenda. *Raii Hist. Plant.*

AUCHEN, *αὐχὴν*. The Neck.

AUCHMOS, *αὐχμὸς*, from *αὐς*, to dry. It imports Weather which is extremely hot, sultry, and squalid. The *Latins* translate it by *squalor*. *Hippocrates* frequently uses this Word.

AUCTIO, Augmentation, Accretion.

AUCUPALIS SORBUS, and AUCUPARIA, are Names for the Ornus, or Sorbus Sylvestris. *Blancard*.

AUDACIA, in a Medicinal Sense, is that Sort of Boldness and Audaciousness, which we meet with in Deliria and Madness. It also signifies Impudence, which *Hippocrates* advises a Physician not to be guilty of.

AUDE, *αὐδή*, the Voice. See VOX.

AUDITORIUS, Auditory. Thus there is the *Meatus Auditorius*, the Auditory Passage; and *Nervus Auditorius*, the Auditory Nerve. See AURIS.

AUDITUS, the Sense of Hearing. See AURIS.

AVELLANA, Offic. *Corylus sylvestris*, Ger. 1250. Emac. 1438. Raii Hist. 2. 1379. Synop. 3. 439. Mer. Pin. 30. C. B. Pin. 418. Merc. Bot. 1. 31. Phyt. Brit. 31. Tourn. Inst. 582. Elem. Bot. 453. Boerh. Ind. A. 2. 176. Dill. Cat. Giff. 35. Buxb. 86. Rupp. Flor. Jen. 265. *Corylus seu Nux Avellana sylvestris*, J. B. 1. 269. Park. Theat. 1416. Chab. 38. *Nux Avellana sylvestris*, Jons. Dendr. 112. The HAZEL. Dale.

Miller takes Notice of six Sorts of Nuts, the first of which is the preceding mention'd by Dale, which he calls the wild Hazel-nut.

The second is the *Corylus sativa, fructu albo minore, sive vulgaris*, C. B. The SMALL MANURED HAZEL-NUT.

The third is the *Corylus sativa, fructu rotundo maximo*, C. B. The LARGE COBNU.

The fourth is the *Corylus sativa, fructu oblongo rubente*, C. B. The RED FILBERT.

The fifth is the *Corylus sativa, fructu oblongo rubente, pellucula alba tecto*, C. B. The WHITE FILBERT.

The sixth is the *Corylus Hispanica, fructu majore anguloso*. Pluk. Alm.

The first of these Trees is common in many Woods in England, from whence the Fruit is gather'd in Plenty, and brought to London by the Country People.

The second and third Sorts are planted in Hedge-rows, in moist shady Places in Gardens; but the Fruit is much better, and in greater Quantities, when they have an open free Air, and are not suffer'd either to grow too thick, or be overhung with other Trees.

The fourth and fifth Sorts, that is, the red and white Filberts, are mostly esteem'd for their Fruit, being much sweeter, and their Shells much tenderer.

The sixth Sort is annually brought from Spain in great Plenty, and sold in London all the Winter Season, from which Nuts there have been many Trees raised in the English Gardens; but I have not yet seen whether they prove the same with the Nuts sown.

Every body knows, that the Hazel, or Nut-tree, never arises to be a Tree of any great Magnitude, shooting forth from the Root a Number of long, smooth, tough, and pliable Branches, bearing large, round, rough Leaves, indented about the Edges, before whose appearing, early in the Spring, there come forth on the Branches, a great many long, loose *Juli* or *Cutkins*. The Nuts grow two, three, or four together, on one Stalk, each cover'd with a membranous Husk, open and jagged at the Top. When ripe, the Shell is hard and brittle, having a sweet Kernel. This Tree grows every-where in the Woods and Hedges.

I know not of any great Use that is made of any Part of this Tree in Medicine. Some account the *Juli* and Nut-shells to be restraining or binding; the Kernels are hard of Digestion, and stuffing, causing Shortness of Breath and Wheezing; tho' an Emulsion made of them with Mead is commended for an old dry Cough. *Miller's Bot. Off*.

You are to chuse such Filberts as are large, full-grown, and each having a Kernel that is almost round, reddish, full of Juice, of an excellent Taste, and not Worm-eaten.

Filberts are more nourishing than Nuts; they are by some esteem'd pectoral.

They are windy, and hard of Digestion.

They contain a middling Quantity of volatile and essential Salt, much Oil and earthy Parts.

The moderate Use of this Fruit agrees at all times with every Age and Constitution, provided there be a good Stomach.

R E M A R K S.

The Filbert is a Fruit well known; they are of a different Bigness, grow upon a common Shrub in Hedges and Woods, and the same is also planted in Gardens.

Filberts, as well as Nuts, contain a great Quantity of Oil, and the same is easily extracted. In the mean time, Filberts have a more agreeable Taste than Nuts, because their

Salt is not so sharp as that of Nuts, and because it is also closely united to the oily Parts.

Filberts are pectoral, and nourishing, because of their oily Parts; they are also of a binding Nature, by reason of their earthy Principles, which communicate a greater Consistence to the Liquors, and swallow up the over-abundant Moistures that loosen the solid Parts. In the mean while they are hard of Digestion, when immoderately used, because of their solid and earthy Substance.

The Husks or Covers of the Filberts are astringent, and proper for binding the Body, but provoke Urine.

They cover Filberts with Sugar, and make Comfits of them of an excellent Taste; they are commonly used for a Defect, and help Digestion. *Lemery on Foods*.

Nuts and Filberts will purge People, when taken in considerable Quantities.

The Cream of these Nuts is good in the Stone and Heat of Urine. Emulsions may be made of them. *Quercetan* gave a Dram of the Powder of Nutshells, mixed with an equal Quantity of prepared Coral, in a Glass of the Water of Carduus Benedictus, or Corn Poppy, in the Pleurisy. *Martyn's Tournesfort*.

AVENA, Offic. *βρώμη*, *Discorides*. *Avena vesca*, Ger. 68. Emac. 75. Park. Theat. 1134. Mer. Pin. 13. *Avena alba*, J. B. 2. 432. Raii Hist. 2. 1253. Synop. 3. 389. Chab. 176. *Avena vulgaris*, Merc. Bot. 2. 16. Phyt. Brit. 14. *Avena vulgaris seu alba*, C. B. Pin. 23. Theat. 469. Hist. Oxon. 3. 209. Tourn. Inst. 514. Elem. Bot. 415. Boerh. Ind. A. 2. 161. Rupp. Flor. Jen. 244. Buxb. 34. OATS. Dale.

This Grain grows not to be so tall as Wheat or Rye, but it is fuller of Knots or Joints: The Leaves are like Wheat, and it bears on the Top a loose Panicle of several distinct Grains, standing on long slender Foot-stalks; the Grain is longer, slenderer, and smoother than Barley, cover'd with a loose Husk or Skin. It is sown in March or April.

Oats are restraining, and drying; and Oatmeal is of great Use both in Health and Sickness, being a wholesome and cleansing Food; Water-gruel, made thereof, being much used in all Kinds of Distempers. Oats fried, and put into a Bag, and apply'd to the Side, are good to ease pleuritic Pains; and to the Belly, help the Colic, and Pains in the Bowels. *Miller Bot. Offic*.

As for unprepared Oats, they are only used for feeding Cattle; but when reduced to what we call Oatmeal, for which Purpose the largest and best Oats must be chosen, they may be made into Cakes and Gruels, which are very agreeable, and excellent for People in Health; as also for such as labour under Pains of the Breast and Throat, especially if Sugar-candy, Conserve of Violets, Currans, or Figs, are added to them. They render the Body soluble, and evacuate the glutinous Humours, which prove offensive to it. Some affirm, that they breed Worms; which may nevertheless be prevented, by preparing them with Anise or Fenel-seed. Oatmeal Cakes cure Belly-aches and Fluxes, and are esteem'd good for such as labour under Consumptions, Impostumations, or Pains arising from the Stone. *Pliny*, L. 18. N. H. C. 17. informs us, that the Germans eat no other Cakes than those made of Oatmeal; and Experience teaches us, that Children brought up with it generally become very robust, and have a fresh lively Colour, *Theod. Tabern. Herbar. L. 1. Sect. 7. C. 21.* and *Jean. Gussers, Tab. Med. S. Medicin. Domest. Tab. 60.* In many Parts they make not only Bread, but Ale, of Oats; and a few Grains, eaten rough, are said to cure Heart-burns. The Bread is a coarse and hot Food, of a disagreeable Taste, hard Digestion, and a constipating Quality, *Galen. L. 1. de Aliment. Fac. C. 14. J. Bruyer. de Re Cib. L. 5. C. 20. Claud. Deodat. Panth. Hyg. L. 2. C. 2.* It is nevertheless very good for rendering People, that are too fat and corpulent, lean, and reducing them to a more moderate Size. *Cardan. L. 8. Subtil.* affirms, that, of Oats, the *Muscovites* make an Ale, or Drink, which is of a hot Nature, and so strong, that it intoxicates sooner than the richest Wines. Oatmeal, used in Emulsions, is serviceable in Paroxysms of the Stone. Decoctions of Oats, in Conjunction with Piony-water, are good against Fevers, according to *G. H. Felsch. Chil. 1. Exot. Cur. & Obs. 643.*

Oatmeal, boil'd to a considerable Consistence in Water, and apply'd to hot Tumors and Fistulas, disposes them to heal; and it mix'd with Butter, cures scald Heads. Oats and Cumin, put into a Bag, and apply'd hot to the Belly, give Ease in the Colic, and Disorders of the Matrix, *Casp. Hoffman. in Consil. a L. Scholtz. edit. L. 3. Conf. 14.* Some add Juniper and Bayberries, and Salt. 'Tis here proper to observe, that a Medicine may be prepar'd of Horse-dung, which is of admirable Use in the Colic, Jaundice, Pains arising from the Stone, acute Pains of the Sides, and in expelling the Secundines. A Poultice of Oatmeal, prepar'd with Water and Powder of Marshmallows, is of singular Use in removing Roughness and Chaps in the Nails, *Ger. Blasius, Med. Univers. part. 4. C. 3.* The Straw

Straw of Oats is used in such Baths as are intended to ease the Pains arising from a Stone in the Kidneys. If the Hairs are washed with a Lixivium of it, it renders them of a yellowish Colour. This Straw is very good for Cows, and they eat it with Pleasure; but 'tis not so proper for Horses, since it generally gives them Pains in the Belly. If a Horse is afflicted with a Suppression of Urine, boil Oats in Wine, and give him them to be eaten pretty hot, and his Disorder will very soon be removed. When Fowls cannot lay Eggs, Women give them roasted Oats to be eaten, with a View to remove that Defect. *Barthol. Zorn, Botanolog.*

Oatmeal, made into flat Cakes, is the common Food of the ordinary People in *Scotland, Wales, Derbyshire*, and the *North of England*. But the Dough, of which these Cakes are made, is fermented generally with Barm, which takes away all Viscidities, renders it more acefcent, and consequently very proper Aliment for People who use much Exercise, and eat a great deal of Animal Food. Oatmeal unfermented, like the Meal of all farinaceous Seeds, is subject to generate Viscidities in the Stomach and Intestines; but is more proper when an Alcalescence prevails in the Constitution, than if fermented.

The famous Remedy for acute Distempers, and which has very undeservedly been the Subject of much Ridicule, I mean *Water-gruel*, is made of Oatmeal boil'd with Water. This is endow'd with the same Medicinal Virtues as the *Ptisan of Hippocrates*; and, as an Acefcent Aliment, is very good when there is a Tendency to an Alcaline Putrefaction, which is the Case in most acute Distempers. Farinaceous Vegetables, by being digested, and boil'd in Water, grow more acefcent. See that Part of the Article *ALCALI*, which specifies the Regimen proper in acute Diseases.

Dale takes Notice of another Species of Oats, which is the *AVENA NIGRA*, Ind. Med. 16. Chom. 746. Raii Hist. 2. 1253. Synop. 3. 389. Mer. Pin. 13. J. B. 2. 432. Chab. 176. C. B. Pin. 23. Theat. 472. Tourn. Inst. 514. Elem. Bot. 415. Boerh. Ind. A. 2. 161. Hist. Oxon. 3. 209. Buxb. 35. *Avena semine nigra*, Rupp. Flor. Jen. 244. **BLACK OATS.**

It is sown in Fields, for the Use of Horses as well as the preceding.

There are some other Species of Oats mention'd by Botanic Writers, possess'd of much the same Virtues as those above-mentioned. See *ÆGILOPS*.

AVENQUA, the Portuguese Name for the *Adiantum Brasiliense*, Maiden-hair of *Brasil*.

AVENZOAR, the Name of an Arabian Physician.

Avenzoar, tho' his Age cannot be precisely determin'd, seems to have lived after *Avicenna*; and we are sure he lived before *Averrhoes*, who more than once gives him a very high and deserved Encomium, calling him *admirable, glorious, the Treasure of all Knowledge*, and the most *Supreme* in Physic, from the Time of *Galen* to his own. He was born, or at least resided much, at *Seville*, the Capital of *Andalusia*, and the Seat then of the *Mahometan* Chaliph. He lived to 135. began to practise at 40, or, as others say, at 20; and had the Advantage of a longer Experience than almost any one ever had; for he enjoy'd perfect Health to his last Hour. He tells us himself, how he was imprison'd, and barbarously treated, by *Haly*, the King's Constable in that City; tho' it appears, by his own Account, that once, either before or after, he cured that Minister's Son of a Jaundice. He wrote a Book call'd *Thaiffir*, that is, one which contain'd all Rules for Medicine and Diet in most Distempers; and this Work, indeed, shews him to have been a Man of Business and Experience. It appears too from hence, that he had the Care of an Hospital, and was employ'd often upon the *Miramamolins* Commands.

He is reckon'd, by the Generality of Writers, an Empiric; tho' I can't imagine, why they pitch'd upon him for this Character, which suits him, I think, less than any of the rest of the *Arabians*: One would naturally suspect by this, that they had never read further than his Preface, which, indeed, does contain a Collection of Receipts used by himself and others. For, not to mention that he was bred in a Physical Family, (his Father and Grandfather being both Practitioners, whom he always remembers with great Gratitude and Honour) we have his own Testimony, that he had a regular Education; and that he not only learnt what properly belongs to a Physician, but, out of a great Desire of Knowledge, every thing besides which relates to Pharmacy and Surgery. He lays it down for a Maxim, That Experience chiefly is the right Guide and Standard of a warrantable Practice, and must absolve or condemn him, and every Physician, both in this Life and the next. He expresses himself more remarkably in another Place, where he is speaking how indifferent it is to apply this or that Oil in the Case of some Tumors; and observes by the way, that the Art of Curing is so little to be attain'd to, by any logical Distinctions, or sophistical Subtleties, that long Use, assisted by a good Judgment, can only furnish out so extraordinary a Talent. For Example, says he, if any one would take it into his Head to refine, and nicely distinguish, about laxative Medicines, and pretend to find out the proportional Quantity and Quality of any

Purge, so as to square it exactly to the Constitution of the Patient, and the Nature of the Humours to be discharged, and calculate it so as not to be even a Hair over or under; such Speculations, in his Opinion, contribute very little to form a Judgment about any right Method of Cure. And here, no doubt, he had *Alkindus* in his Eye, who wrote a fanciful Treatise in this way, concerning the Doses and Qualities of Medicines.

And this Author is so little addicted to Quackery, and has so mean an Opinion of a bare Receipt, that he exclaims against the Impudence of old Women in this Point, as well as rejects the idle Superstition of Astrologers. It is a very remarkable Story he tells of himself, in a particular Case, where he was at a Loss how to proceed, and ask'd the Opinion of several other Physicians to no Purpose: At last he took a Journey to the Town where his Father lived, and desired his Advice. The old Man would give him no direct Answer, but shew'd him a Place in *Galen*, and bid him read that; if he could find out the Cure of the Distemper by it, it was very well; if he could not, he bid him never think of making any Proficiency in Physic. The Advice succeeded, so that the Patient was cured, to the Satisfaction both of the Father and the Son. And, indeed, throughout all this Work, he professes himself so much of the Dogmatical or Rational Sect, which was directly opposite to the Empirical, that he has a great deal of Reasoning about the Causes and Symptoms of Distempers; and as in his Theory he chiefly, if not only, follows *Galen*, so he quotes him, upon all Occasions, oftener than the rest of the *Arabians* do. *Freind's History of Physic.*

The Works of *Avenzoar*, or *Abhemeran Aben-Zear*, are,

LIBER THESIR DAHALMODANA VAHALTAIR, which imports *Rectificatio Medicationis & Regiminis*.

This was printed at *Venice*, 1496. in *Fol.* and again at the same Place, 1514. *Fol.* And in 1531. in *8vo.* with the Addition of his *Antidotarium*, and the *Colliget of Avenzoar*. *Tunder Linden, de Scriptis Medicis.*

AVERICH, Sulphur. *Johnson.*

AVERRHOES lived not long after *Avenzoar*; for he intimates himself, that he was acquainted with his Son. He died at *Morocco*, *A. H.* 595. as some say, or 603. as others. He made a great Figure in Life; and his Works made him celebrated over all *Europe*, after his Death. He was a Native of *Corduba*, bred to the Law, tho' he afterwards studied Mathematics and Physic. *J. Leo* gives a long Account of his Grandfather, that he was sent by his Countrymen, who intended to revolt, to offer the Crown to the Emperor of *Morocco*; that he was by him constituted Chief of the Priests, and great Judge of the Kingdom of *Corduba*, a Post which he enjoy'd a long while, and was succeeded in it by his Son; and his Grandson. Our *Averrhoes* was famous for his Liberality and Patience, and for his continual Application to Study; and, without doubt, he was a Man of strong natural Parts, and a very subtle Reasoner. He had the Title of *Commentator* given him, from the many Volumes he wrote upon *Aristotle*, and was call'd, besides, the *Soul of Aristotle*. In Physic he wrote a Book, at the *Miramamolins* of *Morocco's* Command, which goes by the Name of *Colliget*, divided into seven Parts, containing the whole Science of Medicine, and is chiefly a Compendium, as he owns himself, of what had been said by others, with some Additions of his own. He begins with the general Rules of this Art, and so descends to Particulars; and therefore, he says, nobody will be able to understand what he wrote, but who is well versed in Logic, and natural Philosophy: Accordingly he mixes more of the *Aristotelian* Philosophy with his Theory of Physic, than the other *Arabians* do; for which Defect he find Fault with the wise Men of *Andalusia*. And thus, I suppose, he must be understood to mean, when he says, he shall use Expressions, and explain Things, which his Predecessors never did, and shall deduce every thing from the Roots of natural Science. In Anatomy, he professes he gives us nothing new, and, indeed, he here entirely copies after *Galen*. And as to the practical Part of this Work, there is scarce any thing in it but what is borrow'd; and tho' he speaks several times of his own Experience, yet he does not seem to have been much conversant in Practice, as indeed we may guess he was not, from the History of his Life. However, there is one Observation he makes, which I find no-where else, that the same Person can have the Small-pox only once. The chief Design, indeed, of this Treatise appears to be, to lay down right Notions concerning the speculative Part of Physic, in which there were, in his Time, great Disputes; and therefore, as he follows much the same Method as his Master *Aristotle* observes in the History of Animals, so one great Aim he had in writing this Book, was to reconcile the Opinions of that Philosopher with those of *Galen*, an Author who seems to have the second Place in his List.

Mr. *Bayle* has collected a great many Passages out of Authors, relating to *Averrhoes*; and as he seems never to have been acquainted with the Original, he follows those Authors implicitly, who often mislead him: As where he tells us, from *Champerius*, that he was a bitter Enemy to *Avicenna*; and that, for this Reason, he avoids ever naming him, which he does in this

this Book often, and in his Metaphysical Disputations; not to mention the Comment he has writ expressly upon that Author's *Cantica*. And as to being his Enemy, as is here suggested, if we look into this very Comment, we may easily be convinced of the contrary; for he thinks this Treatise of *Avicenna* one of the best Introductions to Physic which ever appear'd; and therefore because it was concise, and sometimes wanted an Explanation, he undertook the Task himself; and to shew his Candour, even when *Avicenna* seems to lay down some wrong Positions, he explains in what Sense they should be understood, so as to be consistent with Truth; as particularly in the Doctrine about bleeding o'd Men, (which he distinguishes perfectly right) and the making Use of subterraneous Caverns. The last Rule particularly, he says, would not so well suit his Climate, which was the fifth, that is, *Spain*; but might be very proper for the fourth, which was hotter, and where *Avicenna* lived. What Mr. Bayle recites from Mr. Pasquier, about *Averrhoes* bleeding his Son at three Years old, is equally a Mistake; for *Averrhoes* himself tells us, that it was *Avenzoar* who used this Practice in the Case of his own Son. So where he quotes Mr. Petit for saying, that *Averrhoes* never gave any Medicine to the Sick, and that he owns as much himself, is directly contrary to what this Book will inform us; tho' I agree, that it is probable he was no very great Practitioner.

Mr. Bayle wonders why Mr. *Herbelot* is so short in his Account of this famous Author; and I should wonder why Mr. Bayle is so prolix upon the same Head, did I not consider, that he picks up a few odd Stories, which have been handed about, concerning his Irreligion, particularly the celebrated Saying he is charged with, *Sit anima mea cum Philosophis*; a Saying which, perhaps, there was no more ground to fallen upon *Averrhoes*, than any of those Particulars I have mention'd. This Writer has, with no little Pains, amass'd together all that he could meet with, upon this Article, in modern Authors; and, in a more emphatical manner, enlarges upon what he found quoted from the Disputations which this *Arabian* wrote against *Algazel*, a Man famous in the preceding Century, for being the Founder of a Sect call'd the *Mutazelas*, and who died A. H. 503. a Piece finely written, as he tells us from *Rapin*; but, in his own Opinion, very pernicious. In this are contain'd a great many Speculations concerning the Soul, consonant to the Doctrine of *Aristotle*; amongst the rest, the Unity of the Intellect is explain'd: From which Mr. Bayle would infer, that he was a very impious Person, and one who must of course maintain the Mortality of the Soul; and consequently deny any future Rewards or Punishments. Why he should be so fond of drawing *Averrhoes* into these Opinions, I will not take the Liberty so much as to guess; only give me Leave to observe, that if he would have consulted the Author himself, instead of the Collectors he here quotes, he would have found a very different Account of his Notions: For, in one Dissertation, *Averrhoes* asserts, that the Soul is not material; and in another, that it is immortal. So usual is it with these Compilers of secret History to run into infinite Mistakes, merely because they take every thing at second-hand, and upon Trust; whereas would they have been at the Pains to go to the Fountain-head, and cast an Eye only upon the Original, their Memoirs would have been much more exact.

But, to digress no further, as there is little material in this Author, *Averrhoes*, relating to Practice, I shall not trouble you now with any further Account of him, or his Works. I shall only mention, that he takes Notice of *Alkindus*, the Author of a Treatise now extant, concerning the Proportion and Doses of Compound Medicines; and who, perhaps, might be the same with the famous *Peripatetic* of that Name, in the Reign of *Almanon*. In this Book he endeavours to reduce the Qualities of Medicines to the Rules of *Arithmetic* and *Musick*; but *Averrhoes* justly thinks he refined too much, and that it is not only a Work of mere Speculation, built upon no solid Ground, that is, that of the Quality of a Medicine in the Compound increasing always in a double Proportion, but owing altogether to his mistaking the Sense of *Galen* upon the same Subject. *Friend's History of Physic*.

The Works of *Averrhoes*, are,

Collectaneorum de re Medica Sectiones tres, a *Johanne Braverio* Campegio Latinitate donata, Lugdun. 1537. Fol.

Averrhois Opera. Venetiis apud Juntas, 1552. Fol.

His *Colliget*, and Commentaries on the *Cantica* of *Avicenna*, and some other Pieces, are extant with the Works of *Avenzoar*, Venet. 1496. Fol. and Lugduni, 1531. 8vo.

His Book *De Venenis* is printed Lugduni, 1517. 4to.

And his Commentary upon *Avicenna*, Venetiis, 1484. in Fol. and again at the same Place, 1555. Fol. *Vander Linden de Scriptis Medicis*.

AVERSIO, Aversion. It signifies the diverting a Flux of Humours from one Part to another, whether by Revulsion, Derivation, or Repulsion.

Aversio also implies a Nausea, or Inappetency; and sometimes is used to express that Recession of the Uterus from its

proper Place, which the Antients imagin'd to happen in Hysterical Disorders.

AVES, Birds. The Natures of these, consider'd as Aliment or Medicines, are express'd under their different Names.

Avis Medica, is the Peacock.

Aves, or *Aviculæ Cypriæ*, are perfum'd Candles, or Sticks of Wax.

Aves also is a Word made use of by some of the Enthusiastical Chymists, to express, or rather to conceal, their Meaning; in which they have effectually succeeded. *Rulandus*, for Example, thus defines the *Avis Hermetis*: *Æs Hermetis, avis volans, quia in altum evolat, & tamen iterum in terram propter nutrimenta descendit: unde nutrix omnium est terra*.

The *High Dutch* Interpretation of the same Author is rather greater Nonsense than the *Latin*; for which Reason the Reader need not regret, that I have not translated it.

AVEVETL, and AHOEHOTL, are Indian Names for the *Abies Mexicana*. *Raii Hist. Plant.*

AUGARES, *αυγαρης*, a Name of an Ingredient in a Clyster for the Coeliac Passion, in a Prescription given by *N. Myrsipus*, Sect. 17. Cap. 45. I don't know, that it has ever been discover'd what it means. The Interpreters keep the Word, and confess they do not understand it.

AUGITES, *αυγιτης*, the Name of a Gem, which *Pliny* says many People esteem to be not very different from the *Callais*. It is said to be of a pale Green, and not so valuable as a *Topaz*. *Pliny* says the *Callais* imitates the *Sapphire*, but is more white.

AUGMENTATIO, Augmentation, Increase, Accretion, Growth.

AUGMENTUM. Diseases, especially Fevers, are divided by Authors into the Beginning, the Augment or Increase, the State or *ακμή*, and the Decline. The *Augmentum*, therefore, is that Part of the Disease which lasts from the Beginning, or first Seizure, to the State, or till it arrives at its utmost Violence.

AUGURISTA. By the Explication which *Castellus* gives of this Word, it should signify what we call a Conjuror. A Person who pretends to shew preternatural Images in Looking-glasses, Crystals, and Water; and to foretel Events by the Singing and Flight of Birds.

AUGUSTUM, A specious Epithet given to some Medicinal Compositions by their Authors or Describers.

AVICENNA.

The famous *Avicenna*, the Son of *Hali*, was born at *Bochara*, in *Chorasan*, about 980. He studied Philosophy very early; so that, if we believe *Sorfanus* his Disciple, he was Master of *Euclid*, and other mathematical Books, when he was but sixteen Years old; and soon made such Proficiency in the Study of Physic, as to become very celebrated for his Skill in that Art. The *Arabic* Writers tell this Story of his Sagacity, That he found out, by the Pulse, the Distemper the Nephew of *Calous* laboured under, which was Love; and that by a Stratagem he made use of, he discovered likewise the particular Object of his Passion: The Case is so parallel, that one would be apt to think, they stole this Account from what *Appian* relates of *Erosistratus*, in a like Illness of *Antiochus*, the Son of *Selenus*. *Avicenna* lived, for the most part, at *Ispahan*; he is represented by them, as one very much addicted to his Pleasures, so that he fell into several Sorts of Distempers; and it was a Saying, they tell us, in those Times, *That all his Philosophy could not make him moral, nor all his Physic teach him, how to preserve his Health*. He died in the 58th Year of his Age, or rather, if we calculate to a Nicety, the 56th, in 1036. at *Medina*; and was buried in the City of *Hamadan*.

History tells us, that he made a very considerable Figure in the World; so that by some of his own Countrymen he is reported to have been raised up to the Dignity of *Vizir*; from whence, I suppose, some more modern Writers have fancied, that he was really a Prince; and others have given out, that he was a King; though they do not agree, whether he reigned in *Corduba*, or *Bithynia*.

This is the Account the best Historians give of the Origin and Age of *Avicenna*, though he is supposed by some, without any Ground, to have been a *Spaniard*, and by others an *Egyptian*. It is amazing, where *Neander* could pick up the Materials to furnish out such a Romance, as he has made of this Writer's Life: He tells us, very formally, that he was born at *Edeffa*, the Capital of *Commagena*, in 1145. that he went from thence to *Alexandria*, where he studied under *Rhazes*; and that afterwards he travelled into *Spain*, where he was the Disciple of *Averrhoes*, at *Corduba*. But it is no new thing in this extraordinary Author, to write as many Fallities and Contradictions, as he does Pages.

Avicenna compiled a large Work, which he called the *Canon*; and the Fame of this Book was so great throughout all *Asia*, that it was epitomiz'd and commented upon by several other *Arabians*, in the twelfth and thirteenth Centuries; and, even long before this, it began to prevail so much in *Europe*, that there

there was no other Doctrine taught in the Schools of Physic; and it happened to be the good Fortune of *Avicenna*, to continue his Empire there, till the Restoration of Learning.

One would naturally expect to find something in this Author, answerable to such a Character; but though I have very often looked into his Writings upon several Occasions, (for you won't suppose, I believe, that I have gone through him in any regular Course of Reading) I could meet with little or nothing there, but what is taken originally from *Galen*, or what at least occurs, with a very small Variation, in *Rhazes*, or *Haly Abbas*. He in general seems to be fond of multiplying the Signs of Distempers, without any Reason; a Fault too much imitated, as Errors are the easiest to be followed, by our modern Writers of Systems. He often indeed sets down some for essential Symptoms, which arise merely by Accident, and have no immediate Connexion with the primary Disease itself. And, to confess the Truth, if one would chuse an *Arabic* System of Physic, that of *Haly* seems to be less confused, and more intelligible, as well as more consistent, than this of *Avicenna*. *Freind's Hist. of Physic*, Vol. 2.

The Works of *Avicenna* were printed at *Venice*, 1596. in Folio.

The *Liber Canonis, de Medicinis Cordialibus, & Cautica*, together with some other Pieces, were printed *Venetiis*, apud *Juntas*, 1544. & 1555. in Fol. *Basiliæ*, apud *Johan. Herwagenium*, 1556. in Fol. *Venetiis*, apud *Ottav. Scotum*, 1500. in 4to. *Groningæ*, 1649. in 12mo.

Canon Medicinæ. *Venetiis*, apud *Juntas*, 1595. & 1608. in Fol. 2 Vol. apud *Vinc. Valgrifium*, 1564. in Fol. 2 Vol. *Ibidem*, 1580. in 4to. *Lovanii*, apud *Mempacum*, 1658. in Fol. *Uratistaviæ*, Fol. per *Petrum Kirstinium*.

Libro quinque Canonis Medicinæ Aben Ali, Principis Filii Sinæ, alias corruptè *Avicennæ*. *Arabice nunc primum impressi. Romæ ex Typographia Medicea*, 1593. in Fol.

Libellus de removendis Nocuentis, quæ accidunt in Regimine sanitatis: Tractatus de Symplo acetoso, uno cum Syraci Medici expositione in 2. & 3. partem. 4. Pen. 1. Can. Avic. & Ebenefi super 5 Can. Venetiis, apud *Domitium de Tridino*, 1547. in maj. Fol.

De Corde, ejusque Facultatibus, Libellus, Joh. Bruyerino Campegio Interprete. Lugduni, apud *Nicol. Edvardum*, 1559. in 8vo.

De Animalibus, per M. Mich. Schotur ex Arabico in Latinum translatus. This is extant in Folio, without any Specification of the Time when printed, or the Place where.

Canonis Libri 3. Pen. 1. Tractatus quartus, in quo scribit de ægitudinibus Capitis, & noxâ multâ illarum in functionibus sensus, & moderaminis, sive partis reëtriciæ, à Johanne Quinquaborræo Latine versus, & ad fidem codicis Hebraici correctus. Parisiis, apud *Martinum Juvenem*, 1572. in 8vo.

Canonis Libri 3. Pen. 2. quæ est de Ægitudinibus Nervorum, à Quinquaborræo Latine versa. Parisiis, apud *Mart. Juvenem*, 1570. in 8vo.

Quanti Libri Canonis Pen. prima de febribus. Patavii, 1659. in 12mo.

De Tinctura Metallorum Tractatus. Francofurt. apud Cyriacum Jacobum, 1550. in 4to.

This is thought supposititious, as is the following:

Chymicus Liber, Porta Elementorum dictus. Basiliæ, apud *Petrum Pernam*, 1572. in 8vo.

AVICULÆ HERMETICÆ. The universal Salt, which *Sendivogius* says is to be found in the Dew, is called by this Name in the *German Ephemerides*.

AVICULARIA SYLVII, a Name for the *Speculum Veneris majus*, a Plant; called otherwise, *The greater Venus's Looking-glass*.

AVILA, is a Species of Apple produced in the *Indies*. It is larger than an Orange, of a considerable Size. It is of a round Figure, plump, and of a yellow Colour. It grows in those Colonies of *America* which belong to the *Spaniards*, upon a sort of Shrub, or creeping Plant, which adheres to the adjacent Trees. This Apple includes eight or ten flat orbicular Nuts, which have a small Cast of the Oval, and at one of their Extremities terminate in an obtuse Point. These Nuts, tho' joined to each other, are yet easily separable. They are convex on one Side, concave on the other, almost as large as our half Crown, half a Finger's Breadth in Thickness, covered with a moderately thick Bark, which is hard, of a woody Texture, a little rough, especially on the convex Side, and of a yellowish Colour. Under this Bark is a tender, white, and bitter Almond, which is esteemed an excellent Medicine against Poisons, and Malignity of Humours. One or two of these Almonds may be taken for a Dose. *Lemery Traité universel de Drogues Simples*.

AULOS, αὐλός, properly signifies a Pipe, or Canal, or Foramen. In *Hippocrates de Mulierum Morbis*, Lib. 2. it imports the exterior Foramen of, or Entrance into, the Vagina Uteri; as ἰσθμὸς, is the Vagina itself.

AULOS also signifies a Pipe to blow through.

VOL. I.

Aulus, in *Pliny*, is a Shell Fish, which we call the *Scallop*.

AULISCOS, αὐλίσκος, is a Catheter, or a Clyster-pipe.

AVORNUS, the **ALNUS NIGRA**, is thus called by *Crescentius*.

AVOSETA.

Avoseta Italarum, seu Spinzago d'Aqua, is an aquatic Bird as large as a Pigeon; its Beak is four or five Inches long, black; turned up, and pointed at the End. Its Head is blackish, the Body white, the Feet bluish, having the Toes joined by Membranes; the Legs are long: It is found in *Italy*. The Fat is esteemed very resolutive, emollient, and anodyne. *Lemery des Drogues*.

AURA.

Aura five Gallinassa, (Jonston)

Is a Species of Raven of *Mexico*, which approaches the Size of a large Eagle; the *Indians* call it *Tropillorl*. Its Colour is black; the Beak is made like a Perroquet's; the Forehead is covered with a Skin wrinkled without Feathers: It is armed with black crooked Claws. This Bird is common in *New Spain*; it keeps at Night upon the Trees, and upon the Rocks, but comes in the Day near the Cities; it lives upon Ordure and Excrements. They say, that the young ones are white, but that they blacken as they grow larger. They fly in Flocks, pretty high; they make no Cry, and are of a bad Smell. They contain a great deal of volatile Salt and Oil. The Heart of this Bird, being dry'd in the Sun, is very fragrant. The Flesh, being eaten, is good for the Small-pox; the Feathers, burnt, are deterfive, vulnerary, and proper to prevent the Hair from falling off, if the Ashes are sprinkled upon the Flesh. *Lemery des Drogues*.

AURA also signifies a Vapour or Exhalation, such as those which arise from Mephitical Caves.

Helmont speaks much of the *Aura Vitalis*, which seems to mean what others call the *Flamma Vitalis*, *Vital Flame*. Both are mere Jargon, and only mean Chimæras existing no-where but in the extravagant Imaginations of those who make use of them.

AVRANCUM, Egg-shells. *Rulandus*.

AURANTIA, a Fruit-tree, thus distinguished:

Malus Aurantia, Offic. Ger. 1279. Emac. 1463. *Raii Hist.* 2. 1658. *Malus Aurantia vulgaris*, Park. Theat. 1508. *Malus Aurantia major*, C. B. Pin. 436. *Aurantium, Mala Aurantia*, Mont. Ind. 37. *Aurantia Malus*, C. B. 1. 97. Chab. 5. *Aurantium vulgare*, Ferr. Hesp. 377. *Tourn. Inst.* 620. *Elem. Bot.* 493. *Boerh. Ind. A.* 239. *Mala Aurantia*, Aldrov. Dendr. 489. *Malus Aurantia vulgaris major*, *Jonst. Dendr.* 22. **THE ORANGE-TREE.** *Dale*.

This beautiful Tree grows to a pretty great Bigness in its native Places, having many Branches, the younger of which are of a greenish Colour, with several sharp Thorns growing on them; the Leaves are of a pale, yellow, green Colour, in Shape like Bay-leaves, each of which is set on a Foot-stalk in Shape of a Heart, of a pleasant fragrant Smell, when bruised: The Flowers grow on the younger Shoots among the Leaves, of a single Cup-fashioned Leaf, cut into five Parts, with several yellow Stamina in the Middle, of a fragrant odoriferous Smell; they are succeeded by large round Fruit, green at first, and of a reddish-yellow Colour, covered with a tough Skin or Peel, under which is contained the Pulp, consisting of a great Number of small Vesiculæ, full of a sharp Juice, (among which lie longish round Seeds pointed at both Ends) divided by a Skin into several Cloves, or Partitions.

This Tree grows in Plenty in *Italy*, *Spain*, and *Portugal*, and bears Flowers and Fruit all the Year; but the Fruit is chiefly gathered in *October* and *November*.

The Juice of Oranges is used as Sauce to whet the Appetite. It is cordial and cooling, good to quench Thirst, and serviceable in burning Fevers; it is of great Use in the Scurvy, being frequently mixed among other Antiscorbutics. The Peel or Bark is cordial and stomachic, strengthens and warms the Stomach, prevents Nausea and Vomiting, and helps the Colic.

Official Preparations from Oranges are, a Water distilled from the Flowers, the *Aqua Naphæ*, Off. a Conserve of the Peel, and the same candied, and a Syrup of the Juice.

N. B. The Sevil Orange is only used in Physic, the China Orange being only eaten for Pleasure. *Miller's Bot. Off.*

This Fruit has different Names, such as the *Mala Aurantia*, *Aurantia*, *Arangia*, *Mala Aurca*, *Chrysomela*, *Poma Anarantia*, *Aurantia & Nerantia*, *Orangia*, or *Aurangia*. The Poets undoubtedly meant no more by the *Golden Apples* produced in the Gardens of the *Hesperides*, than Oranges, which are the Fruit of this Tree. Thus *Virgil* is to be understood in this Line:

Aurca Mala decem misi: Cras altera mittam.

But some of the Fruit differ very much in Taste from others: Some are very bitter, whilst others are sweet: Others again keep, as it were, a due Medium between sweet and bitter; and this last Sort are justly preferred to the others, not with regard

regard to the Peel or Bark, which, in Heat and Dryness, surpasses that of the Lemon, but with regard to the Qualities and Agreeableness of the Juice, which is less cold than that of the Lemon. Their Virtues are the same with those of the Citron and Lemon; for which Reason, we find, in some foreign Shops, their Peel dried and preserved, a Water, a Syrup, an Essence, a Tincture, and a distilled Oil of Oranges; but particularly we find the preserved Flowers, and a Water distilled from the Flowers. Fresh Oranges, if eaten, resist Putrefaction, and prevent the Scurvy. *Bald. Ronsteus, de Scorbuto*, says, he knew some who got entirely free from the Scurvy, only by the Use of Oranges, and their Peel. *L. Riverius*, in his fourth Century, *Obs.* 84. makes Mention of a Shoe-maker, who had laboured under a Quartan Ague for near half a Year, and who was at last cured by the Use of Oranges, which he cut into small Pieces, and boiled in White-wine; by taking some of which for a few Mornings, his Disorder was removed. The Juice of sweet Oranges, exhibited with Syrup of Violets, is excellent for procuring Sleep in Fevers. *Jo. Camerar. Hort. Med.* The Peel dried, reduced to a Powder, and drank in White-wine, corroborates the Stomach, helps Digestion, procures an Appetite, sweetens a stinking Breath, and is serviceable in Swellings of the Belly, Colics, Pains which succeed Child-birth, Suppressions of Urine and the Colic. See *Ephem. N. G. Dec.* 3. *Ann.* 1. *Obs.* 35. This Virtue is still stronger in the distilled Oil, four or five Drops of which are to be taken in Wine. *Domin. Panarolus, Pent.* 2. *Obs.* 8. says, that the Oil expressed from Orange-peel, proves a very expeditious Cure in Fevers. The Flowers preserved with Sugar are an excellent Cordial, and esteemed very good in burning and pestilential Fevers. The Water distilled from the Flowers has a very fragrant Smell, and is good in malignant and virulent Fevers; for it promotes a plentiful Diaphoresis, comforts the Heart, refreshes the vital Spirits, gives Ease in the Colic, allays Pains of the Stomach, and kills Worms. It is also applied to the Pulse with a View to comfort the Heart. It is elegantly prepared in *Italy*, where it is called *Napha* and *Angelica*. See *Renod. Lib.* 1. *de Mat. Med. Sect.* 6. *Cap.* 4. In *Spain* 'tis usually given to Women in hard Labours. It is also used with Success in Hysterical Fits, but must be mixed with Musk and Dragons-blood for answering that Intention. *R. Solenandr. Sect.* 5. *Confil. Med.* 15. *L. River. Lib.* 15. *Prax. Med. Cap.* 6. *Et Cent.* 1. *Obs. Med.* 65. 94. The Water distilled from the Seed cures Pains arising from the Stone in the Kidneys. *Ferrar. Lib.* 4. *Hesper. Fol.* 478. The Leaves, by means of a chymical Preparation, yield an Oil which is excellent in Cases where the Shin-bones are laid bare. The Seed resists Poison, and kills Worms. The Leaves, if boil'd in Red-wine, and drank, put a Stop to the Catamenia.

We may here mention the Poma Sinensia, the Mala Aurantia Chinenfia, or China Oranges, which are of late become well enough known, and are superior to the others in Delicousness of Taste, and bear the Name of the Country, from which they are imported to *Lisbon*, where they are now produced in considerable Quantities as well as in *Spain*. Their Juice is much better adapted to the Intentions of Physic, but must not be taken in too large Quantities, especially by those who have cold and weak Stomachs. In the Shops, they make of their Peel an Essence or Tincture, which is highly cordial and stomachic. *Barthol. Zorn. Botanolog.*

The Rind of the bitter Orange heats much.

The Juice of the sweet Orange, immoderately taken, weakens the Stomach, and causes Wind. As for the Juice of the bitter Orange, it sometimes incommodes the Stomach and Breast, by a little too rough pricking of those Parts.

The Juice of the bitter Orange contains much Phlegm and essential Salt, and a little Oil.

The Rinds of the sweet and bitter Oranges agree at all times, in all Sorts of Ages, to Persons who have a weak Stomach, and those of a phlegmatic and melancholy Constitution. As for the Juice of these Fruits it is very good in hot Weather for bilious Persons, and those whose Humours are too sharp, and too much agitated.

REMARKS.

Oranges are brought from several Parts: The best and the most in Esteem for a good Taste, are those which grow in hot Countries; not only because the Soil of those Places, having Store of exalted Sulphur and volatile Salts in it, communicates a great Quantity of the same to these Fruits, and gives them an agreeable Smell, but because the Heat of the Sun there digests, and more completely ripens their Juice, and gives them a more delicious Taste.

The Juice of the bitter Orange is sharp, because it contains much acid Salt in it, and because this Salt is but little embarras'd with the rosy Parts; which is the Reason it communicates almost all its Acidity to the little nervous Fibres of the Tongue. As for the Juice of the sweet Oranges, as it contains less Salt than that of the bitter one, and as this Salt is

kept under by a great Quantity of oily Parts, it is easy to be understood, that it can make but a slight Impression on the Parts it touches.

They prefer the Juice of the bitter Orange in Medicinal Use before the other, as was before observed, for cooling and moistening, and mitigating Fevers; because this Juice has more of the Acid in it, and can more easily thicken the over-thinned Liquors, allay their violent Motions, and keep down those sharp Humours, that throw them into an extraordinary Fermentation. I suppose, by the bitter Orange, *Lemery* means the sour.

Of the ORANGE-FLOWER.

You ought to chuse such as are white, fair, of an agreeable Smell, and fresh gathered.

They cheer the Heart and Brain, promote the Menfes, strengthen the Stomach, and assist Digestion.

The immoderate Use of this hot Flower renders the Bile more sharp, and by that means may cause different Diseases.

It contains much exalted Oil, volatile Salt, and Phlegm.

The Orange-flower agrees at all times with aged, phlegmatic, and melancholy Persons; as also with those that have a weak Stomach, and do not easily digest their Food.

REMARKS.

The Orange-flower is used in Food and Physic; they preserve it whole, and, by distilling, extract from it a Liquor of a very pleasant Smell, and much used in Cordial, Hysterical, and Cephalic Potions. Its pleasant Smell proceeds from those Sulphurs and Salts contained therein, which are elevated with the Liquor, and mix therewith. The Orange-flower helps Digestion by its volatile Principles, which divide and attenuate the gross Parts of the Aliments. It also refreshes the Heart and Brain, and promotes the Menfes, because the same exalted Principles revive the Mass of Blood, increase the Quantity of the Spirits, and rarefy the viscous Juices which obstruct the Course of the Blood. *Lemery on Foods.*

AVRARIC, Mercury.

AURATA, a Fish, called *The Gilt-head*, or *Piscis Sacer*. According to *Athenæus*, it was esteemed very delicious Food by the Antients. It is called also *Orata*.

AUREA ALEXANDRINA, an Opiate or Antidote, invented by *Alexander*. See ALEXANDER.

AURES, the Ears. See AURIS.

AUREUS, a pompous Appellation for many Medicinal Compositions, either on account of their Costliness, Efficacy, or because Gold enters their Composition.

AUREUS RAMUS, is the Art of making Gold.

AUREUS is also a Weight equal to a Dram and an half. *Castellus*.

AURICHALCUM, Brass,

Is a Mixture of Copper and Lapis Calaminaris, which is put together in Fusion by a very vehement Fire, in a Furnace made for that Purpose.

The Discovery was made by the Alchymists, who, endeavouring to turn Brass into Gold, found the way to give it a yellow Colour. The Calaminaris Stone embarrasses the acrid Salts of the Metal to that Degree, that it makes no Impression on Liquors, as the Copper does. Besides, as the Calaminaris Stone costs but little, so the yellow Brass is cheaper than the natural. *Lemery des Drogues*.

In making of Medicines great Care must be taken, that nothing acid is put into a naked Brass Vessel, because Acids dissolve Brass, and that renders the Medicine emetic.

AURICOLLA, the Gue, or Cement of Gold. It should seem to signify the same as CHRYSOCOLLA, which see.

It is mentioned in the *Turba Philosophorum. Theatr. Chym.* Vol. 5.

AURICULÆ Cordis, the Auricles of the Heart. See COR.

AURICULA Judæ, & Fungi Sambuci, Offic. *Fungus membranaceus auriculam referens, sive Sambucinus*. C. B. 372. Raii Hist. 1. 106. Synop. 18. *Fungus membranaceus auriculam referens*, Hist. Oxon. 3. 642. *Fungus Auriculæ Judæ, coloris ex cineraceo nigricantis, perniciosus, in Sambuci caudice nascens*, J. B. 3. 840. *Fungus Auriculæ Judæ, coloris ex cineraceo nigricantis, perniciosus*. Chab. 588. *Fungus Sambucinus, sive Auricula Judæ*, Ger. Emac. 1481. *Fungus Sambuci, vel Auricula Judæ*, Sterb. 256. Tab. 27. H. *Fungus Sambucinus*, Park. 1320. *Agaricus Auriculæ forma*, El. Bot. 441. Tourn. Inst. 562. Poerh. Ind. A. 14. Buxb. 7. *Agaricum Auriculæ formâ*, Mich. Nov. Gen. 124. Tab. 66. 1. *Peziza Auriculam referens*. Dill. Cat. 195. JEWS-EAR. Dale.

AURICULÆ JUDÆ, or *Jews Ears*, are a sort of Fungus, or a Species of Agaric, which is found adhering to the Trunk of the Elder-tree. This is of the Figure, and oftentimes the Size, of a Man's Ear; but they are found larger and smaller. It is of a membranous, cartilaginous, and pliant Substance, like Leather,

Leather, of a blackish-grey Colour. It contains a great deal of Oil and volatile Salt.

It is very resolute, proper for Tumors, and for Inflammations of the Throat, and other Parts, being broken and applied thereto. It should be used internally with Caution, for it is a sort of Poison. *Lemery des Drogues.*

It is directed to be boil'd in Milk, or macerated in Vinegar, in order to make a Gargle for the Throat, in a Quinsey: And sometimes it is infused in Water for the same Purpose, with other Ingredients.

Dale says it is astringent.

AURICULA LEPORIS. See BUPLEURUM.

AURICULA MURIS, Mouse-ear. See PILOSELLA:

AURICULA URSI, Offic. *Auricula Urfi flore luteo*, Ger. 640. Emac. 784. Raii Hist. 2. 1082. Elem. Bot. 100. Tourn. Inst. 120. Boerh. Ind. A. 200. J. B. 3. 490. Chab. 492. Rupp. Flor. Jen. 14. *Auricula Urfi flore flava*, Park. Parad. 239. *Auricula Urfi*, *Sanicula Alpina*, Mont. Ind. 37. *Sanicula Alpina lutea*, C. B. Pin. 242. Hist. Oxon. 2. 557. YELLOW BEARS-EARS. *Dale.*

This Herb grows in great abundance at or about *Utrecht*, in *Stiria*, *Tyrole*, *Savoy*, and *Switzerland*, about the Middles, and on the Tops, of large Mountains. It bears large thick green Leaves upon its Stalks, at whose Tops there are Flowers of different Colours. The Inhabitants of *Utrecht* call it *Primula odorata*, on account of its agreeable Smell. Tho' this Herb is not ordinarily kept in the Shops, it may nevertheless be rank'd among the Vulneraries, and is of singular Service, both for internal and external Purposes. It abounds with a mild, temperate, and glutinous Juice, which, when express'd, may be apply'd to old Wounds, with a great deal of Success: When mix'd with Ointments and Plaisters, it is of great Service in Ruptures, *Jo. Camerar. Hort. Med. p. 25.* Four or six Spoonfuls of the Water, in which the Herb has been boil'd, taken every Morning, cure Coughs and Ulcers of the Lungs. Such as go a-hunting on the large Mountains, where 'tis to be found, use its Root against Vertigoes. See *Conr. Gesner. de Lunar. Herb. p. M. 34. Sennert. L. 1. Pract. p. 2. C. 4.* The Juice of the Flowers removes Spots of the Face, and beautifies the Skin; and with the same Intention some distil a Water from it. *Barthol. Zorn, Botanolog.*

AURICULARIA, Ear-wort, Marlow, or Cylonian Plant. It is a Species of Mint. See MENTHA.

AURICULARIUS, belonging to the Ear. *Auricularius Medicus* is a Physician for the Ears.

AURIGA, a sort of Bandage for the Sides, described by *Galen.*

AURIGA also signifies the fourth Lobe of the Liver. *Castellus.*

AURIGO, the Jaundice. See ICTERUS.

AURIPIGMENTUM, Offic. Matth. 1367. Ind. Med. 17. Worm. 28. Kentm. 17. Agric. 592. *Auripigmentum luteum*, Aldrov. Mus. Metall. 353. *Arsenicum croceum Auripigmentum*, Charlt. Foss. 12. *Arsenicum flavum Auripigmentum*, Mont. Exot. 13. ORPIMENT.

The Orpiment of the Shops, *Auripigmentum* in Latin, ἀρριμέντον of *Dioscorides*, ἀρριμέντον of *Galen*, *Narueth* of *Serapion*, *Zarnick Arsar* of the *Arabians*, and Orpiment or Orpin in French, is an Arsenical Juice, in squamous or foliaceous Glebes, like the *Lapis Specularis*, the *Squamæ*, or *Strata*, being easily separable from each other.

Orpiment is of three Kinds; one of a Gold Colour; the second of a deeper Red, or Cinnabarine Colour, mix'd with Yellow; and the third greenish and yellowish, mix'd with a large Proportion of Earth, and therefore the least valuable. These three Kinds are found in the Veins of Gold, Silver, and Copper Mines; but we know not what was the other Kind of Orpiment, mention'd by *Dioscorides*.

Orpiment is of an acrid Taste, soluble in Oil, and inflammable by Fire, emitting a thin Flame with a great deal of Smoke, smelling strongly of Sulphur or Garlick. This Smoke, if collected, turns to yellowish Flowers like Sulphur, and a red or blood-colour'd Mass remains behind; which, when cold, concretes into a hard solid *Regulus*, like Cinnabar, called by some Red Orpiment, or Realgar. If the Orpiment be kept in a subliming Vessel for a long time on the Fire, the whole Mass is raised to the upper Part of the Vessel, and there concretes into a beautiful, red, pellucid Substance like a Ruby, only a small Quantity of Metallic Earth remaining at the Bottom. The first Fumes, which come from this *Regulus*, will turn Copper white and brittle.

Orpiment therefore must consist of the same Parts as common Sulphur, with some Mineral Particles mix'd with them; or it is composed of an acid Salt, entangled in Particles of Mercury, and of a bituminous Substance. Its corrosive Quality arises from the acid *Spicula* stuck into the Particles of Mercury; but it has that Quality in a less degree than corrosive Sublimate, because of its bituminous Part. It is less inflammable than Sulphur, because the Energy of the acid Salts contain'd in it is weaken'd by the Mineral Parts; and, from its corrosive Quality, it is deservedly reckon'd among Poisons.

It was antiently used by Physicians to eat away fungous Flesh, but is now laid aside in that Intention, Chymistry having furnished us with much better Cathartics. It is used sometimes by Barbers, with a Mixture of Quick-lime, as a Depilatory, to eradicate the Hairs of any Part of the Body; but if they let it lie on too long, it corrodes the Skin. Some Physicians recommend the internal Use of Orpiment, in Substance, in a purulent Phthisis accompanied with Expectoration, and in Asthmas. The Fumes of it may likewise be received at the Mouth in the same Intentions, and the *Chinese* reckon it among the Purgative Medicines. However, I cannot think the inward Use of this Medicine in any respect allowable; for it is a strong Poison, destructive to the Nerves, and accordingly is found by Experience to bring on very terrible Symptoms, such as Spasms in the Hands and Feet, Stupors and Contractions, cold Sweats, Palpitations of the Heart, Faintings, Thirst, inward Burning, Vomiting, Belly-ach, Erosions, violent Pains, and Death itself, according to the different Doses of this Poison; and in the Bodies of such as die in this manner, the Oesophagus, Stomach, and Intestines, are found to be inflamed, corroded, and perforated in several Places.

The Antidotes for Orpiment; and all other Arsenical Substances, are whatever is able to blunt the Acrimony of these corrosive Medicines; such as Milk and Oil, drank in great Quantities, fat Broths, the Juice of Mallows or Marshmallows, Decoctions of Flea-wort, and Linseed, Marshmallow-roots, and such-like. Orpiment or Arsenic, worn about the Neck like an Amulet, cannot be so hurtful as some imagine; neither do we believe it of any Virtue in preserving against the Plague, or pestilential Diseases.

Of the *Lixivium* of Orpiment and Quick-lime is made the Sympathetic Ink, by the Effluvia of which alone, Letters written with Vinegar of Lead become visible; and the Painters use it for Gold Colours, from which Use its Name is derived. *Geoffroy.*

AURIPIGMENTUM RUBRUM, REALGAR, which see.

AURIS, the Ear.

Every one knows that the Ears are two in Number, that they are situated on the lateral Parts of the Head, and that they are the Organs of Hearing. Anatomists commonly divide or distinguish the Ear into *external* and *internal*. By the *external Ear*, they mean all that lies without the external Orifice of the Meatus Auditorius in the Os Temporis; and by the *internal Ear*, all that lies within the Cavities of that Bone, and also the Parts that bear any Relation thereto.

The greatest Part of the *external Ear* consists of a large Cartilage, very artificially framed, which is the Basis of all the other Parts of which this Portion of the Ear is made up. The *internal Ear* consists chiefly of several bony Pieces, partly form'd in the Substance of the *Ossa Temporum*, and especially in that Portion of it call'd *Apophysis Petrosa*, and partly separated from, but contain'd in a particular Cavity of that Bone.

The *external Ear*, taken all together, resembles in some degree the Shell of a Muscle, with its broad End turn'd upward, the small End downward, the convex Side next the Head, and the concave Side outward. Two Portions are distinguish'd in the *external Ear*, taken all together, one large and solid, call'd in Latin *Pinna*, which is the superior, and by much the greatest Part; the other small and soft, call'd the *Lobe*, which makes the lower Part. We may likewise consider two Sides in the *outward Ear*, one turn'd obliquely forward, and irregularly concave; the other turn'd obliquely backward, and unequally convex; for all Ears, which have not been disorder'd by binding the Head too tight in Childhood, are naturally bent forward.

The fore Side is divided into *Eminences* and *Cavities*. The *Eminences* are four in Number, call'd Helix, Anthelix, Tragus, and Antitragus. The Helix is the large folded Border, or Circumference of the great Portion of the Ear. The Anthelix is the large oblong Eminence, or Rising, surrounded by the Helix. The Tragus is the small anterior Protuberance below the anterior Extremity of the Helix, which, in an advanced Age, is cover'd with Hairs. The Antitragus is the posterior Tubercle, below the inferior Extremity of the Anthelix.

The Cavities on the fore Side are four in Number, the Hollow of the Helix, the Depression at the superior Extremity of the Anthelix, call'd *Fossa Navicularis*; the Concha, or great double Cavity, that lies under the Rising, term'd Anthelix, the upper Bottom of which is distinguish'd from the lower by a Continuation of the Helix, in form of a transverse Crista; and lastly, the Meatus of the *external Ear*, situated at the lower Part of the Bottom of the Concha.

The back Side of the *external Ear* shews only one considerable Eminence, which is a Portion of the convex Side of the Concha, the other Portion being hid by the Adhesion of the Ear to the Os Temporis. This Adhesion hinders us likewise from seeing the Hollow answering to the Crista, by which the Cavity of the Concha is divided.

I have already said, that the *external Ear* consists chiefly of a Cartilage, which is the Basis of all the other Parts. These other Parts are Ligaments, Muscles, Integuments, sebaceous and ceruminous Glands, Arteries, Veins, and Nerves; but I do not reckon among them a large Gland, call'd, by the *Greeks*, *Parotis*, because it lies very near the Ear.

The Cartilage of the *outward Ear* is nearly of the same Extent and Figure with the large solid Portion thereof, already mention'd; but it is not of the same Thickness, being cover'd by Integuments on both Sides. In the Lobe, or soft lower Portion of the *Ear*, this Cartilage is wanting. On the back Side, it shews all the Eminences and Cavities on the fore Side in an opposite Situation, with respect to each other, except the Fold of the great Circumference; and it consists only of one Piece from that Circumference all the Way to the Meatus Externus, except at the two Extremities of the folded Part of the Helix, where there are two small separate Portions connected to the great Cartilage only by the Integuments.

The cartilaginous Portion of the external Meatus Auditorius does not make a complete Circle, but rather a short Tube, in one Side of which there is a Break, and which terminates in an oblique Border, fixed to the Edge of the bony Canal by several small Inequalities, as by a kind of Ingrailing; and from this Obliquity it is that the cartilaginous Border terminates downward, in a kind of Apex or Point. The lateral Break in this Cartilage is between the upper and back Part of its Circumference, and on each Side thereof the cartilaginous Edges are rounded. There are likewise two or three other small Incisures in this Circumference, which, in regard to the Meatus, represent obliquely transverse Fissures. The anterior Fissure is in a manner quadrangular; neither are the intermediate Parts always opposite to each other, for the uppermost is a little further from the Os Temporis than the posterior.

The *external Ear* is fix'd to the Cranium, not only by the cartilaginous Portion of the Meatus already mention'd, but also by Ligaments, which are two in Number, one anterior, the other posterior. The anterior Ligament is fix'd by one Extremity to the Root of the Apophysis Zygomatica of the Os Temporis, at the anterior, and a little toward the superior, Part of the Meatus Ossis, close to the Corner of the Glenoid Cavity; and by the other Extremity to the anterior and superior Part of the cartilaginous Meatus.

The posterior Ligament is fix'd by one End to the Root of the Mastoide Apophysis, and by the other to the posterior Part of the Convexity of the Concha, so that it is opposite to the anterior Ligament. There is likewise a kind of superior Ligament, which seems to be only a Continuation of the Aponeurosis of the Frontal and Occipital Muscles.

Of the Muscles of the *external Ear*, some go between the Cartilages and Os Temporis, others are confin'd to the Cartilages alone. Both Kinds vary in different Subjects, and are sometimes so very thin, as to look more like Ligaments than Muscles. The Muscles of the first Kind are generally three in Number, one superior, one posterior, and one anterior, and they are all very thin. The superior Muscle is fix'd in the Convexity of the Fossa Navicularis, and of the superior Portion of the Concha; from whence it runs up to the squamous Portion of the Os Temporis, expanding in a radiated manner, tho' not in the same Degrees, in all Subjects; and is inserted principally in the Ligamentary Aponeurosis, which covers the posterior Portion of the Temporal Muscle.

The anterior Muscle is small, more or less inverted, and like an Appendix to the superior. It is fix'd by one Extremity about the Root of the Zygomatic Apophysis, and by the other in the anterior Part of the Convexity of the Concha.

The posterior Muscle is almost transverse, and of a considerable Breadth, being fix'd by one End to the posterior Part of the Convexity of the Concha, and by the other in the Root of the Mastoide Apophysis. It covers the posterior Ligament; but the Division of it into several Portions, mention'd by some Author, seems to be merely artificial, that is, owing to Dissection.

The small Muscles, which are confin'd to the Cartilages, are only small Strata of Fibres, found on both Sides of the Cartilages. In many Subjects they are of so pale a Colour, as not to look at all like Muscular Fibres. Of this Number are those which *Valsalva* discover'd in the different Cavities on the back Side of the Cartilage, and those found by *Santorini* on the Tragus, and along the convex Part of the anterior Portion of the Helix.

The Skin of the *external Ear* is, in general, a Continuation of that which covers the neighbouring Parts of the Temporal Region. The Skin on the fore Side of the Ear is accompanied by a very small Quantity of cellular Substance; and therefore we find all the Eminences and Cavities of that Side distinctly mark'd upon it, as far as the Bottom of the external Meatus Auditorius. In what I have said of the Skin, the Epidermis is likewise comprehended.

The back Side is cover'd by the Skin, continued from the fore Side; but as the Folds are there very close, it only passes over them, except that Portion of the Concha which surrounds

the Entry of the Meatus Auditorius, and which is join'd to the Os Temporis, by means of the cellular Substance. The Hollow of that common Fold, which lies between the Anthelix and Concha, does not appear on the back Side; for, as it is fill'd with the cellular Substance, the Skin passes over it.

The Lobe of the Ear, or that soft Portion, which lies under the Tragus, Antitragus, and Meatus Auditorius, is made up of nothing but Skin and cellular Substance. The Meatus Auditorius is partly bony, and partly cartilaginous: The bony Portion is the longest, and forms the Bottom of the Canal: The cartilaginous Portion is the shortest, and, in Adults, forms the external Opening, or Orifice of the Canal.

These two Portions, join'd endwise to each other, form a Canal of about three Quarters of an Inch in Length, of different Wideness in its different Parts, and a little contorted. It is lined on the Inside by the Skin, and cellular Membrane, thro' its whole Length; and thus these Integuments make up for the Breaks in the cartilaginous Portion, and form a kind of cutaneous Tube in the other Portion. The cellular Membrane is confounded with the Perichondrium and Periosteum of the Meatus.

The Skin which covers both Sides of the Cartilage contains a great Number of small Glands, which continually discharge an oily whitish Humour, collected chiefly near the Adhesions of the Ear to the Head, and under the Fold of the Helix; and these Glands are of the sebaceous Kind. The Skin which lines the Meatus Auditorius, contains another kind of Glands, of a yellowish Colour, and which may be plainly seen on the convex Side of the cutaneous Tube.

These Glands are disposed in such a manner as to leave reticular Spaces between them, and they penetrate a little way into the Substance of the Skin. They are call'd *Glandulae Ceruminosae*, because they discharge that Matter which is named *Cerumen*, or the Wax of the Ears. The inner Surface of the cutaneous Tube is full of fine Hairs, between which lie the Orifices of the ceruminous Glands. The first Place, in which we meet with these Glands, is on that Part of the convex Side of the cutaneous Tube, which supplies the Breaks of the cartilaginous Meatus.

The Arteries of the *external Ear* come anteriorly from the Arteria Temporalis, and posteriorly from the Occipitalis, which is a Branch of the external Carotid. It is proper to observe here, that the Occipital Artery communicates with the Vertebralis, and thereby with the internal Carotid. The Veins are Branches of the Jugularis Externa. And the Occipital Vein communicates not only with the Vena Vertebralis, but immediately with the neighbouring lateral Sinus of the Dura Mater.

The Portio Dura of the Auditory Nerve, having pass'd out of the Cranium, thro' the Foramen Stylo-mastoideum, in the manner that shall be afterwards described, gives off a Branch which runs up behind the Ear, to the back Side of which it sends several Filaments; and the Trunk of this Branch sends likewise Filaments to the Meatus, and fore Side of the Ear. The second Vertebral Pair sends also a Branch to the Ear, the Ramifications of which communicate with those of the other Branch from the Portio Dura.

All the bony Organ of Hearing may very naturally be divided into four general Parts:

1. The external Meatus Auditorius.
2. The Tympanum, or Barrel of the Ear.
3. The Labyrinth.
4. The internal Meatus Auditorius.

It may likewise be divided into immoveable or containing Parts, which take in all the four already mentioned; and moveable or contain'd Parts, which are four little Bones lodg'd in the Tympanum, call'd *Incus*, *Malleus*, *Stapes*, and *Os Orbiculare*, or *Lenticulare*.

The external MEATUS AUDITORIUS.

The external Auditory Passage begins by the external Auditory Hole, the Edge of which is rough and prominent; but backwards, towards the Mastoide Apophysis, it appears very much sloped. The Passage itself is about half an Inch in Length, running obliquely from behind forward, in a curve Direction, and sometimes winding a little in the Middle, like a Screw. Its Cavity is almost oval, wider at the Entry than at the Middle, after which it widens again by Degrees.

It terminates inwardly by an even circular Edge, lying in a Plane very much inclined, the upper Part of it being turn'd outward, and the lower Part inward; so that the whole Canal is longer on the lower Side than on the upper. The concave Side of the circular Edge is grooved quite round.

In Children this bony Canal is wanting, as well as the Mastoide Apophysis; and the inner circular Edge is a distinct Ring, which, in an advanced Age, unites entirely, and becomes one Piece with the rest: It is termed the *Bony Circle* in Infants; and, indeed, it is very easily separated from all the other Parts.

It should seem therefore, that the whole bony Canal in Adults is only a Prolongation of the bony Circle in Children ; because, even in a more advanced Age, the whole Canal may without much Difficulty be taken out. The circular Groove lies between the Mastoide Apophysis and the articular Fissure or Crack.

The FIGURE and SITUATION of the TYMPANUM.

The *Tympanum* or Barrel of the Ear is a Cavity irregularly semispherical, the Bottom of it being turned inward, and the Mouth joined to the circular Groove already mentioned. Both Eminences and Cavities are observable in it.

EMINENCES.

The remarkable Eminences are three in Number : A large Tuberosity lying in the very Bottom of the Barrel, a little toward the back Part ; and a small irregular Pyramid, situated about the Tuberosity, and a little more backward ; the Apex of it is perforated by a small Hole, and on one Side of the Basis two small bony Filaments are often found in a parallel Situation ; and, indeed, I believe they are seldom wanting, though their tender Structure exposes them to be often broken. In the third Eminence is a Cavity shaped like the Mouth of a Spoon, situated at the upper, and a little towards the anterior Part of the Bottom of the *Tympanum*. This Cavity is Part of a Half-canal, of which hereafter ; and at a very small Distance from its Point, is a little bony Ridge, which goes from one Edge of it to the other, but is sometimes not entire.

CAVITIES.

The principal Cavities in the *Tympanum* are, the Opening of the Mastoide Cells or Sinuities, the Opening of the *Eustachian Tube*, the bony Half-canal, the *Fenestra Ovalis*, and *Rotunda* ; and to these may be added the small Hole in the Pyramid.

The Opening of the Mastoide Cells is at the posterior and upper Part of the Edge of the Barrel. The Cells themselves, which end there, are dug in the Substance of the Mastoide Process, being very irregular, and full of Windings and Turnings.

The Opening of the *Eustachian Tube* is at the anterior, and a little toward the upper Part of the Edge of the Barrel. This Tube, in France generally term'd the *Aqueduct*, runs from the Tympanum towards the posterior Openings of the Nasal Fossæ, and Arch of the Palate. The bony Portion thereof, of which alone I here speak, is dug in the Apophysis Petrofa, along the Duct of the carotid Apophysis ; and when it leaves that, it is lengthened out by the spinal Apophysis of the Os Sphenoides. These two Cavities, the Mastoide Cells, and the Eustachian Tube, are, in some measure, Prolongations of the Tympanum, one anterior, the other posterior.

The bony Half-canal, of which the Cavity resembling the Mouth of a Spoon is the Extremity, lies immediately above the Eustachian Tube, towards the upper Side of the Apophysis Petrofa, or rather in the very Substance of that upper Side. In a natural State, a small Muscle is lodged in it.

The *Fenestra Ovalis* is a Hole of Communication between the Tympanum and Labyrinth. It lies immediately above the Tuberosity, the upper Side of it being a little rounded, the lower a little flattened ; and one Extremity being turned forward, the other backward. Towards the Labyrinth this Opening has a little flat thin Border quite round it, which renders it narrower at that Place than any-where else.

The *Fenestra Rotunda* is something less than the *Ovalis*, and situated in the lower, and a little towards the posterior Part of the large Tuberosity ; the Opening of it, which is the Orifice of a particular Duct in the Labyrinth, lying obliquely backward and outward.

The Hole in the Apex of the Pyramid is the Orifice of a Cavity, which may be named the Sinus of this Pyramid.

The OSSICULA AUDITUS.

The *Tympanum* contains several little Bones, called the Bones of the Ear. They are generally four in Number, denominated from something to which they are thought to bear a Resemblance, as the *Incus*, *Malleus*, *Stapes*, and *Os Orbiculare*, or *Lenticulare*.

INCUS.

The *Incus* or *Anvil* resembles in some measure one of the anterior Grinding Teeth, with its Roots, at a great Distance from each other ; at least it comes nearer to this than to the Shape of an Anvil. It may be divided into Body and Branches. The Body is a large Substance ; the Branches or Legs are two, one long and one short. The Body is turned forward, the short Leg backward, and the long Leg downward.

The Body of the *Incus* is broader than it is thick. It has two Eminences, and two Cavities between them, much in the same manner as we see in the Crown of the first Grinders.

The short Leg is thick at its Origin, and from thence decreasing gradually, it ends in a Point. It is situated horizon-

tally, its Point being turned backward, and joined to the Edge of the Mastoide Opening of the Tympanum.

The long Leg, view'd through the external auditory Passage, appears to be situated vertically ; but if we look upon it either on the fore or back Side, we see it is inclined, the Extremity of it being turned much more inward than the Root or Origin. The Point of the Extremity is a little flattened, and bent inward like a Hook, and sometimes a little hollowed like a kind of Ear-picker. By this we may distinguish the *Incus* of one Ear from that of the other, when out of their Places ; for, turning the short Leg backward, and the long Leg downward, if the Curvature of this long Leg be toward the Left Hand, the Bone belongs to the Right Ear ; if towards the Right, it belongs to the Left Ear.

MALLEUS.

The *Malleus* or *Hammer* is a long Bone, with a large Head, a small Neck, and two Apophyses, one in the Neck, the other in the Handle.

The Top of the Head is considerably rounded, and from thence it contracts all the Way to the Neck. Both Head and Neck are in an inclined Situation ; and the Eminences and Cavities in it answer to those in the Body of the *Incus*.

The Handle is look'd upon as one of the Apophyses of the *Malleus* ; and, in that Case, it is the greatest of the three. It forms an Angle with the Neck and Head, near which it is something broad and flat, and decreases gradually toward its Extremity.

The Apophysis of the Handle, termed by others the small or short Apophysis of the Malleus, terminates the Angle already mentioned, being extended towards the Neck, and lying in a straight Line with that Side or Border of the Handle which is next it.

The Apophysis of the Neck, called also Apophysis Gracilis, is in a natural State very long, but so slender withal, that it is very easily broken, especially when dry, which is the Reason why the true Length of it was for a long time unknown. It arises from the Neck, and sometimes appears much longer than it really is, by the Addition of a small dry'd Tendon sticking to it.

When the Malleus is in its true Situation, the Head and Neck are turned upwards and inwards ; the Handle downwards, parallel to the long Leg of the *Incus*, but more forward ; the Apophysis of the Handle upwards and outward, near the superior Portion of the Edge of the *Tympanum*, near the Centre of which is the Extremity of the Handle ; and the Apophysis Gracilis forward, reaching all the Way to the articular Fissure in the Os Temporis. It is easy, after what has been said, to distinguish the Malleus of the Right Side from that of the Left.

STAPES.

The *Stapes* is a small Bone, very well denominated from the Resemblance it bears to a Stirrup. It is divided into the Head, Legs, and Basis.

The Head is placed upon a short flattened Neck, the Top of it being sometimes flat, sometimes a little hollow.

The two Legs, taken together, form an Arch like that of a Stirrup, in the concave Side of which is a Groove, which runs through their whole Length. One Leg is longer, more bent, and a little broader, than the other.

The Basis resembles that of a Stirrup, both in its oval Shape, and Union with the Legs, except that it is not perforated as the Stirrups now are, but solid, like those of the Antients. Round its Circumference, next the Legs, is a little Border which makes that Side of the Basis appear a little hollow. The other Side is pretty smooth ; and one half of the Circumference is something more curve than the other.

The Subject being in an exact Posture, the *Stapes* is to be considered as lying on its Side, with the Head turned outward, near the Extremity of the Leg of the *Incus* ; the Basis, inward, being fixed in the *Fenestra Ovalis* ; the longest Leg, backward ; the shortest, forward ; and both in the same Plane. By this Situation it is easy to know the *Stapes* belonging to each Ear.

OS ORBICULARE.

The orbicular or lenticular Bone is the smallest Bone in the Body. It lies between the Head of the *Stapes* and Extremity of the long Leg of the *Incus*, being articulated with each of these. In dry Bones it is found very closely connected, sometimes to the *Stapes*, sometimes to the *Incus* ; and might in that State be easily mistaken for an Epiphysis of either of these Bones.

LABYRINTH.

The *Labyrinth* is divided into three Parts, the anterior, middle, and posterior. The middle Portion is termed *Vestibulum*, the anterior *Cochlea*, and the posterior the *Labyrinth*, in particular, which comprehend the three semicircular Canals.

In the true Situation and Direction of the *Apophysis Petrofa*, the *Cochlea* lies forward and inward, towards the Extremity of the

the Apophysis ; the semicircular Canal backward and outward, toward the Basis of the Apophysis, and the Vestibulum between the other two.

VESTIBULUM.

The *Vestibulum* is an irregularly round Cavity, less than the *Tympanum*, and situated more inward, and a little more forward. These two Cavities are, in a manner, set Back to Back, with a common Partition-wall between them, perforated near the Middle by the *Fenestra Ovalis*, by which the Cavities communicate with one another.

The Cavity of the *Vestibulum* is likewise perforated by several other Holes ; on the Outside, or towards the *Tympanum*, by the *Fenestra Rotunda*, but this is commonly seen in dry Bones only ; on the back Side, by the five Orifices of the semicircular Canals ; on the lower Part of the fore Side, by two Holes which are the Entry of the *Cochlea*, but one of them is shut up in fresh Bones ; and on the fore Side, towards the internal *Meatus Auditorius*, opposite to the *Fenestra Ovalis*, by a great many very small Holes for the Passage of the Nerves. On the upper Side there are only small Pores.

SEMICIRCULAR CANALS.

The semicircular Canals are three in Number, one vertical and superior, one vertical and posterior, and one horizontal. The superior vertical Canal is situated transversely with respect to the Apophysis Petrofa, the convex Side or Curvature of it being turned upward, and the Extremities downward ; one inward, the other outward. The posterior vertical Canal lies parallel to the Length of the Apophysis, the Curvature being turned backward, and the Extremities forward, one upward, the other downward ; and the superior Extremity of this Canal meets and loses itself in the internal Extremity of the former. The Curvature and Extremities of the horizontal Canal are almost on a Level, the Curvature lying obliquely backward, and the Extremities forward, ending under those of the superior vertical Canal, but a little nearer each other ; and the inner being almost in the middle Space, between the Extremities of the posterior vertical Canal.

The horizontal Canal is generally the least of the three ; the posterior Vertical is often, and the superior Vertical sometimes, the greatest ; and sometimes these two are equal. All the three Canals are larger than a Semicircle, forming nearly three Quadrants ; they are broader at the Orifices, than in the Middle. These Orifices open into the back Side of the *Vestibulum*, as has been said, being but five in Number, because two of them are lost in each other. So that in the posterior Part of the *Vestibulum*, two appear towards the Inside, and three towards the Outside.

In Children the Substance of these Canals is compact, while that which surrounds them is spongy, so that they may be easily separated from the rest of the Apophysis Petrofa. In Adults, all the Parts of the Bone are so solid, that these Canals appear only like Passages dug in a Piece of Ivory. From this Description it is easy to distinguish the Right *Labyrinth* from the Left.

COCHLEA.

The *Cochlea* is a sort of spiral Shell, with two Ducts, form'd in the anterior Part of the Apophysis Petrofa, in some measure resembling the Shell of a Snail. The Parts to be distinguished in it, in its true Situation, are the Basis, the Apex, the spiral Lamina, or Half-septum, by which its Cavity is divided into two Half-canals, the Spindle round which the *Cochlea* turns, and lastly the Orifices and Union of the two Ducts.

The Basis is turned directly inward, toward the internal Foramen Auditorium ; the Apex, outward ; and the Axis of the Spindle is nearly horizontal ; but in all of them Allowance must be made for the Obliquity of the Os Petrosum, in which they lie.

The Basis of the *Cochlea* is gently hollow'd ; and towards the Middle, perforated by several small Holes. The Spindle is a kind of short Cone, with a very large Basis, which is the Middle of the Basis of the *Cochlea*. Through its whole Length runs a double spiral Groove, which, through a Microscope, shews a great Number of Pores.

The *Cochlea* makes about two Turns and an half from the Basis to the Apex ; and the two Ducts, being strictly united together through their whole Course, form an entire common Septum, which must not be confounded with the Half-septum or spiral Lamina, as is often done. The first might be termed the common Septum ; the other, the particular Septum, or Half-septum.

Both of them are closely joined to the Spindle, being thicker there than in any other Place. The common Septum is complete, and separates the Turns entirely from each other ; whereas the Half-septum in the Skeleton is only a spiral Lamina, the Breadth of which is terminated all round by a very thin Border lying in the middle Cavity of the *Cochlea*. In the natural State

there is a membranous Half-septum, which completes the Partition between the two Ducts.

The two Half-canals turn jointly about the Spindle, one being situated towards the Basis of the *Cochlea*, the other towards the Apex ; for which Reason I have always termed one of them internal, the other external, the Division of them into the upper and lower Flight not being agreeable to the natural State, but liable to convey a very false Idea thereof.

The Spiral or Volute of the *Cochlea* begins at the lower Part of the *Vestibulum*, runs from thence forward to the Top, then backward down to the Bottom, afterwards upward and forward, and so on from the Basis, which is turned inwards, to the Apex, which is turned outwards.

From this Description it is easy to know to which Ear any *Cochlea* belongs, when we see it prepared. It likewise teaches us, that in the Right *Cochlea* the Direction of the Turning is the same as in Garden-snails, and almost all the other common Shells ; but in the Left *Cochlea* the Turnings are in a contrary Direction, as in one Kind of Shell, which is rarely met with.

The two Half-canals communicate fully at the Apex of the *Cochlea*. Their separate Openings are towards the Basis, one of them being immediately into the lower Part of the fore Side of the *Vestibulum*, the other into the *Fenestra Rotunda*. These two Openings are separated by a particular Turning, which shall be explained.

FORAMEN AUDITORIUM INTERNUM.

The internal auditory Hole is the Backside of the Apophysis Petrofa, in some measure behind the *Vestibulum* and Basis of the *Cochlea*. It is a kind of blind Hole, divided into two Fossulae, one large, the other small. The large one lies lowest, and serves for the Portio Mollis of the auditory Nerve, or seventh Pair. The small one is uppermost, and is the Opening of a small Duct, through which the Portio Dura of the same Nerve passes.

The inferior Fossula is full of little Holes, which, in the natural State, are filled with nervous Filaments of the Portio Mollis, which go to the Spindle, to the semicircular Canals, and to those of the *Cochlea*. It is this Fossula which forms the shallow Cavity at the Basis of the Spindle of the *Cochlea*.

The Passage for the Portio Dura of the auditory Nerve runs behind the *Tympanum* ; and its Orifice is the Stylomastoide Hole. Fallopius gave to this Duct the Name of *Aqueduct*, from its Resemblance to some Aqueducts in Italy. It begins by the small Fossula, and pierces from within, outwards, the upper Part of the Apophysis Petrofa, making there an Angle or Curvature. From thence it is inclined backward, behind the small Pyramid of the *Tympanum*, and runs down to the Stylomastoide Hole, through which it goes out. It communicates likewise by a small Hole with the Barrel of the Ear.

In some Skulls this Aqueduct of Fallopius is open on the upper Part of the Apophysis Petrofa, a kind of Break appearing in it, formed by a double Hole. It is at this Place that it makes the Angle already mentioned. But commonly it is covered with a bony Lamina.

The other Parts of the Ear are principally the Membrana Tympani, the Periosteum of the Barrel, the Membrana Mastoidea Interna, the Muscles of the Ossicula, the Parts which complete the Formation of the Eustachian Tube, the Arteries, Veins, and Nerves. I find myself, however, under a Necessity of beginning by the Tuba Eustachiana, for two Reasons : First, because the bony Parts of that Tube are but of very small Use for the Knowledge of its whole Structure and Composition. And, secondly, because we are obliged to mention it in describing the Muscles.

The *Eustachian Tube*, otherwise called *Ductus Auris Palatinus*, and in France generally the *Aqueduct* : This, however, must not be confounded with the Aqueductus Fallopii. It is a Canal or Duct which goes from the *Tympanum* to the posterior Openings of the Nares, or Nasal Fossae, and toward the Arch of the Palate ; it is dug in the Apophysis Petrofa, along the carotid Canal ; and it is lengthened out by the spinal Apophysis of the Os Sphenoidale.

In its natural State, this Duct reaches from the Cavity of the Barrel to the Root or superior Part of the internal Ala of the Apophysis Pterygoidea ; and through this whole Course it is made up of two Portions, one intirely bony, and the other partly bony, partly cartilaginous, and partly membranous.

The bony Portion lies through its whole Length immediately above the Fissure of the Glenoid, or articular Cavity of the Os Temporis, and terminates at the Meeting of the spinal Apophysis of the Os Sphenoidale with the Apophysis Petrofa of the Os Temporis, that is, between that spinal Apophysis and the inferior Orifice of the carotid Canal.

The other or mixed Portion reaches in the same Direction from this Place to the internal Ala of the Apophysis Pterygoidea, or to the posterior and outer Edge of the Nares. But, to form a more exact Idea of it, it will be proper to consider it as divided into four Parts, two superior, and two inferior.

The

The two upper Parts or Quarters are bony ; and of these the innermost is formed by the Side of the Apophysis Petrofa, the outermost by the Side of the Apophysis Spinalis of the Os Sphenoides, so that the upper Half of this Portion of the Tube is bony. Of the two inferior Parts, the internal is cartilaginous, and the external membranous ; so that the lower Half of this Portion of the Tube is partly cartilaginous next the Os Sphenoidale, and partly membranous next the Apophysis Petrofa.

The Eustachian Tube, thus formed, is very narrow in the bony Part next the Ear ; the other Portion grows gradually wider, especially near the posterior Nares, where the inner cartilaginous Side terminates by a prominent Edge, and the outer Side joins that of the neighbouring Nostril. The Cavity of the Tube is lined by a Membrane like that of the internal Nares, of which it appears to be a Continuation ; and, on the prominent Edge, this Membrane is considerably increased in Thickness, representing a kind of half Pad.

The Situation of the two Tubes is oblique, their posterior Extremities at the Ears being at a greater Distance than the anterior at the Nares, and the convex Sides of the prominent Edges are turned toward each other. The Openings of the Tubes are oval at this Place, as is likewise their whole Cavity, especially that of the mixed Portion.

The Eustachian Tube is furnished with three Muscles, according to *Valsalva*, who discovered, that the *Pterygostaphylinus*, and the *Sphenopterygopalatinus*, do not properly belong to the Uvula, but to this Tube. To these he adds a third, which is the *Palatofalpingæus*, since called by some Authors, *Musculus Tubæ Novus Valsalvæ*. It arises broad and tendinous from the Edge of all the lunated Part of the Os Palati, several of its Fibres being spread upon the Membrane that covers the Foramen Narium ; then growing into a small thin Tendon, it is reflected about the Hook-like Process of the inner Ala of the Processus Pterygoideus ; but soon turning into a narrow and thin fleshy Belly, it runs close along the Inside of the Musculus Pterygoideus Internus, and is inserted carnosus into all the membranous, fleshy, and cartilaginous Part of the Tube.

Its Use is to dilate and keep open this Chancel, as *Valsalva* first has most ingeniously taken Notice.

The *Membrana Tympani* is a thin transparent flattish Pellicle, the Edge of which is round, and strongly fixed in the orbicular Groove, which divides the bony Meatus of the external Ear from the Tympanum, or Barrel. This Membrane is very much stretched, or very tense, and yet not perfectly flat ; for, on the Side next the Meatus Externus, it has a small Hollowness which is pointed in the Middle ; and, on the Side next the Tympanum, it is gently convex, and also pointed in the Middle.

This Membrane is situated obliquely, the upper Part of its Circumference being turned outward, and the lower Part inward, suitable to the Direction of the bony Groove already mentioned. It is made up of several very fine Laminæ, closely united together. The external Lamina is, in some measure, a Production of the Skin and Cuticula of the external Meatus ; for they may be pulled at the same time like the Finger of a Glove. The internal Lamina is a Continuation of the Periosteum of the Tympanum ; and, when the Membrane has been first macerated in Water, each of these Laminæ may be subdivided into several others, which I have sometimes made to amount in all to six. In very young Children, this Membrane is covered on the Outside by a thick mucilaginous Web.

The Depression in the Middle of the *Membrana Tympani* is caused by the Adhesion of the little Bone called *Malleus*, the Handle of which is closely joined to the Inside of the Membrane, from the upper Part of the Circumference all the Way to the Centre, to which the End of the Handle is fixed. This Handle seems to lie in a very fine membranous Duplication, by means of which it is tied to the *Membrana Tympani*, and which serves it for a Periosteum.

The Periosteum of the Tympanum, or Barrel of the Ear, produces that of the small Bones, and it may be made visible by means of Anatomical Injections, which discover capillary Vessels very distinctly ramified on the Surface of the *Officula*. It is likewise continued over the two *Fenestræ*, and enters the *Eustachian Tube*, where it is lost in the inner Membrane of that Ducl.

The Cellularæ Mastoideæ are very irregular Cavities in the Substance of the Mastoide Apophysis, which communicate with each other, and have a common Opening towards the Inside, and a little above the posterior Edge of the orbicular Groove. These Cells are lined by a fine Membrane, which is partly a Continuation of the Periosteum of the Tympanum, and partly seems to be of a glandular Structure, like a kind of Membrana Pituitaria. The Mastoide Opening is opposite to the small Opening of the *Eustachian Tube*, but a little higher.

The Ligaments of the *Officula* come next in Order ; the *Incus* is tied by a strong short Ligament fixed in the Point of the short Leg to the Edge of the Mastoide Opening. Between the *Incus* and *Malleus* we find a small thin Cartilage. The *Malleus* is connected through the whole Length of its

Handle, to the Inside of the *Membrana Tympani*, in the manner already said. I need only add here, that, by Help of a Microscope, we discover round the Point of the Handle, in the Substance of the Membrane, a small orbicular Plane, of a whitish Colour, a little inclined to red.

The *Malleus* has three Muscles, one external, one anterior, and one internal ; and the *Stapes* has one Muscle. The external or superior Muscle of the *Malleus*, attributed to *Cassérius*, and mentioned by *Fabricius ab Aquapendente*, is a thin Fasciculus of fleshy Fibres, lying along the upper Part of the bony *Meatus Auditorius*, between the Periosteum and the other Integuments. The outer Part of it is pretty broad, and it contracts by Degrees as it advances towards the upper Part or Break of the orbicular Groove of the Tympanum, into which it enters by a small Tendon, above the *Membrana Tympani*, and is inserted in the Neck of the *Malleus*, near the small Eminence, or short Apophysis, of the Handle. This Muscle is sometimes so pale as hardly to be distinguished.

The anterior Muscle of the *Malleus*, called by Mr. *Duvernoy* the *External*, is fleshy, long, and thin. It runs along the Outside of the *Eustachian Tube*, to which it adheres very closely through its whole Length. Its anterior Extremity is fixed in that Side of the Tube just before the Sphenoidal Spine ; and the posterior Extremity ends in a long thin Tendon, which runs in the Articular or Glenoid Fissure of the Os Temporis, thro' a small oblique Notch, at which Fissure it enters the Tympanum, and is inserted in the long thin Apophysis of the *Malleus*. It is partly accompanied by a Nerve, which forms what is called the *Chorda Tympani*.

The internal Muscle of the *Malleus* is very fleshy and distinct. It lies along the Inside of the *Eustachian Tube*, partly on the cartilaginous, and partly on the bony Portion, being fixed by one Extremity in the Apophysis Petrofa. Afterwards it runs along the Cavity of the bony Half-canal of the Tympanum, within which Cavity it is invelted by a Portion of a membranous or ligamentary Vagina, which, being fixed to the Edges of the Half-canal, forms an entire Tube therewith ; and this Vagina must be cut open before we can see the Muscle.

At the Extremities of this bony Half-canal, where we observe the Cavity shaped like the Mouth of a Spoon, this Muscle ends in a Tendon, which is bent round the transverse bony or ligamentary Ridge in the last-named Cavity, as over a Pulley, and is inserted in the Neck of the *Malleus*, above the small Apophysis, advancing likewise as far as the Handle. The Extremities of the anterior and internal Muscles sometimes meet, and there they cover the mixed Portion of the *Eustachian Tube*.

The Muscle of the *Stapes* is short and thick, and lies concealed within the small bony Pyramid at the Bottom of the Tympanum. The Cavity which it fills, touches very nearly the bony Canal of the Portio Dura of the Auditory Nerve ; and it terminates in a small Tendon, which goes out of the Cavity through the small Hole in the Apex of the Pyramid. As it goes through the Hole, it turns forward, and is inserted in the Neck of the *Stapes*, on the Side of the longest and most crooked Leg of that Bone.

The three Parts of the Labyrinth, that is, the *Vestibulum*, *semicircular Canals*, and *Cochlea*, are lined by a fine Periosteum, which is continued over all the Sides of their Cavities, and shuts the two *Fenestræ* of the Tympanum.

In all the Subjects which I ever examined, I have found the semicircular Canals simply lined by a Periosteum adhering to their inner Surfaces, without any particular membranous Bands. The two Half-canals of the *Cochlea* are lined in this manner : The Periosteum of the two Sides of the bony Spiral Lamina advances beyond the Edge of that Lamina, and forms a membranous Duplication, which extending to the opposite Side, completes the Spiral Septum.

This Septum separates the two Half-canals from the Basis to the Apex, but there it leaves a small Opening, by which the small Extremities of the Half-canals communicate with each other. The large Extremity of the external Half-canal ends by an oblique Turn, in the *Fenestra Rotunda*, which is shut by a Continuation of the Periosteum of that Canal. The large Extremity of the other Half-canal opens into the *Vestibulum* ; and these two Extremities are entirely separated by a Continuation of the Periosteum.

All the Periosteum of the internal Ear, especially that of the *Officula* and Tympanum, is in Children no more than a Mucilage ; and in them likewise the *Membrana Tympani* is thick, opaque, and covered with a whitish slimy Matter.

Through the whole Extent of the Periosteum of the Internal Ear, especially on that of the *Officula*, semicircular Canals, and Half-canals of the *Cochlea*, we discover a vast Number of Blood-vessels, not only by Anatomical Injections, but in Inflammations, and even without the Help of a Microscope ; for I have often shewn them to the naked Eye in the semicircular Canals, and Half-canals of the *Cochlea*. The Arteries come partly from the Internal Carotid, and partly from the Arteria Basilaris, which is a Continuation of the Vertebralis, the small capillary

capillary Ramifications of which may be observed to accompany the Auditory Nerve, through the Internal Foramen Auditorium.

The Portio Mollis of the Auditory Nerve ends by its Trunk at the great Fossula of the Internal Auditory Hole, from whence the Filaments pass through several small Holes in the Basis of the Cochlea, partly to the Periosteum of the semicircular Canals, and partly to the Internal Periosteum of the Half-canals of the Cochlea.

The Portio Dura, which I name *Nervus Sympatheticus Minor*, runs first of all into the small Fossula of the Foramen Auditorium Internum; then passes through the whole bony Duct, called *Aquæductus Fallopii*, and comes out again through the Stylomastoide Hole of the Os Temporis. In this Course it communicates with the Dura Mater on the upper or anterior Side of the Apophysis Petrosa, at the Place where the bony Duct is interrupted.

Having reached behind the small Pyramid in the Bottom of the Tympanum, this Nerve sends a small Filament to the Muscle of the *Stapes*; and, a little before it goes out by the Stylomastoide Hole, it gives off another more considerable Filament, which enters the Tympanum from behind forward, passes between the long Leg of the *Incus*, and Handle of the *Malleus*, and afterwards runs cross the whole Breadth of the Tympanum a little obliquely, and goes out at the same Place at which the Tendon of the anterior Muscle of the *Malleus* enters.

This small Nerve is generally called *Chorda Tympani*, because, in its Passage through the Tympanum, it has been compared to the Cord of a Drum. Having left the Cavity of the Internal Ear, it advances toward one Side of the Basis of the Tongue, where having joined the small Nervus Lingualis, it is considered as a kind of Recurrent.

The Portio Dura passes through the small Fossula in the internal Auditory Hole into the winding Duct of the Apophysis Petrosa, and goes out by the Foramen Stylomastoideum, to the Face and other neighbouring Parts. As it passes through the winding Duct, or Aqueduct of Fallopius, it touches the Dura Mater at the small Opening on the upper Side of the Apophysis Petrosa, where it joins some Filaments from the fifth Pair.

It likewise gives off a Filament to the Muscle of the *Stapes*, and, as it goes out, it gives or receives another Filament, which passes by the Tympanum, and joins the Lingual Branch of the inferior Maxillary Nerve.

I chuse to call this Portion of the Auditory Nerve, *Nervus Sympatheticus Minor*; to the Description of which I now proceed.

The Trunk of each Nerve of the Portio Dura, or of the Sympathetici Minores, having passed through the Ductus Petrosus Fallopii, and having communicated with the Dura Mater, as has been already said, sends off, at about the Sixth-part of an Inch from where it goes out at the Stylomastoide Hole, two Branches, one upward, the other downward.

The superior Branch runs up chiefly to the posterior Parts of the External Ear, to which it is distributed, communicating as it passes behind the Ear, with a Branch of the Second Pair of the Cervical Nerves; and forward with a Branch of the Maxillary Inferior.

The inferior Branch is spent on the three Musculi Styloidei, Digastrius, and on the superior Extremity of the Sternomastoideus, reaching in some Subjects as far as the Middle of that Muscle. Instead of these two single Branches, small Ramifications go out sometimes from the Trunk.

Afterwards the Trunk of the Portio Dura advancing forward, through the Parotid Gland, to which it gives several Filaments; some of these Filaments running from without inwards, and surrounding that Branch of the external Carotid Artery, which runs behind the Ear; sometimes, though very seldom, the Trunk itself is split to give Passage to the Artery.

This Trunk, having passed through the Parotid Gland, behind the Angle of the lower Jaw, is divided into two large Branches, one superior, the other inferior.

The superior Branch of the Portio Dura is the most considerable of the two; and, having run upwards for about the Third-part of an Inch, it divides into seven or eight Branches.

These Branches are spread superficially, and in an irregular radiated manner, on all the lateral Parts of the Face, from the Hair as low as the under Lip, between the Ear and Nose, distributing a prodigious Number of cutaneous Nerves.

In some Subjects these Branches, at their first Separation, form a kind of Plexus, which resembles a Goose's Foot.

The first, second, and third Branches, are distributed to the anterior Parts of the Ear, on the lateral Parts of the Head, the Temporal and Frontal Muscles, and the neighbouring Parts.

One of these Branches, and sometimes the large superior Branch, detaches inward behind the Condyle of the lower Jaw, and before the Temporal Vein, two or three Filaments, which communicate with the inferior Maxillary Nerve.

The fourth Branch goes to the Foramen Superciliare, or

Supra-orbitarium, giving in its Passage several Filaments to the external lateral and superior Parts of the Musculus Orbicularis Palpebrarum, and afterwards communicating with the Orbital Nerve, which goes out by the same Foramen.

The fifth Branch is distributed by small Filaments on the lateral Part of the Cheek, and is partly lost in some small Holes at the Basis or Root of the Zygoma, giving likewise some Filaments to the external lower Part of the Musculus Orbicularis Palpebrarum.

The sixth and seventh Branches, and likewise the eighth, when it is found, are spread on the whole Cheek as far as the Nose.

One of these latter Branches passes under or behind the Musculus Zygomaticus, to which it gives Filaments; and then perforating and giving Filaments to the middle lower Part of the Musculus Orbicularis Palpebrarum, it goes to the inferior Orbital Hole in the Os Maxillare, and communicates with the Nervus Maxillaris Superior.

The last Branch communicates by some Filaments, with a neighbouring Branch of the large inferior Ramification of the Portio Dura.

This large inferior Branch, which is something less than the superior, runs under the Angle of the lower Jaw, and is distributed by several Branches to all the inferior lateral Parts of the Face, and to the neighbouring Parts of the Throat, where it chiefly terminates by a vast Number of cutaneous Filaments.

The upper Branches of the large inferior Branch run upon the Musculus Masseter to the lower Part of the Zygomaticus, Buccinator, and other Muscles of the Lips.

One of these superior Branches communicates with one of the inferior Ramifications of the upper Branch, and by the Intervention thereof it communicates likewise, in some measure, with the Suborbital Branch of the Nervus Maxillaris Superior, or that which goes out by the Foramen Suborbitarium.

The most considerable of all these Branches runs forward along the Basis of the lower Jaw, sending Filaments to the Musculus Cutaneus, and to the Muscles of the under Lip, which it perforates near the Skin, and there communicates with the Nervus Maxillaris Inferior.

The inferior Branches run under the lower Jaw, giving Filaments to the Glandula Submaxillaris, and are distributed to the Throat on the Musculus Cutaneus, intersecting the external Jugular Vein. One or more of these Branches are observed to run down to the Middle of the Musculus Sternomastoideus, where it communicates with a Branch of the second Vertebral Pair.

As Winslow has not given the Uses of the different Parts of the Ear already described, I shall supply this Defect from Du Verney.

We may justly consider the external Ear as a kind of natural Horn, the clean and smooth Cavity of which serves to collect Sounds, and consequently render their Impressions on the other Organs of Hearing stronger. This Opinion is confirmed by Experience; for those who have the Misfortune to have their Ears cut off, labour under so great a Difficulty of Hearing, that they are obliged to use Horns, or their Hands formed into a kind of Tube, in order to supply this Defect. For the same Reason also, some Animals, such as Deer and Hares, for the sake of hearing more distinctly, direct their Ears to that Quarter, from which any Noise they hear, comes.

Some are of Opinion, that the direct Lines of Sound, whilst insinuating themselves into the Sinuses of the Ear, are there several times reflected before they reach the Concha; and that these Sinuses, and repeated Reflexions, serve to augment the Impression made upon the other Organs of Hearing, just as in a semicircular Vault, the Phonic Rays, reflected at equal Angles, according to the Circumference of the Angle of the Vault, at last pass from one Extremity to the other, by a great Number both of strong and faint Reflexions.

The Motion of the Muscles of the external Ear, is a Matter attended with a good deal of Obscurity; but yet it seems probable, that the Concha, must, by their Action, be either contracted or dilated, according to the Impetus or Faintness of the tremulous Motions of the Air.

The Meatus of the Ear, by redoubling the Reflexions, renders the Vibrations more brisk and lively; and the Obliquity of its Structure not only guards the Membrana Tympani against the Injuries of the Air, but is also the Reason why the Surface of the Meatus itself is larger than it would otherwise be; by which means a greater Number of Reflexions are made in it, a Circumstance which evidently tends to render the subsequent Impression proportionably stronger.

That Species of Wax, or viscid Substance, lodged in the anterior and cartilaginous Part of the Meatus, by the Greeks called *πύριον ἢ τῆς ὠτὸς*, by the ancient Latin Physicians, *Aurium Sordes*, and now commonly *Cerumen*, retains, and, as it were, inviscates, any extraneous Substances or Insects, which might possibly convey themselves into the Ear, and infallibly injure the Membrana Tympani. But though this Wax answers very noble and excellent Purposes, 'tis nevertheless, on some

Occasions,

Occasions, productive of very considerable Inconveniencies; for, unless the Ear was frequently cleansed, this viscid Substance would be accumulated in too large a Quantity, become inspissated by its long Continuance in the Ear, and at last hinder the tremulous Motions of the Air from reaching the *Membrana Tympani*. Some time ago, when I made an Attempt to discover the Cause of a Deafness, under which a certain Man had laboured for some Years before his Death, much about two Lines from the *Membrana Tympani*, I found a soft thick Pellicule, to the exterior Side of which a large Quantity of indurated Sordes adhered; and I don't, in the least, doubt, but this Species of Deafness occurs very often.

The cartilaginous Meatus, which is winding and variously interrupted in several Places, forms a certain Ridge, resembling a small Tongue, before the *Concha*, just at the Extremity of the Cheek, and at the very Entrance of the Meatus. This Ridge hinders the Reflexions, made within the *Concha*, from slipping out of its Cavity, and propels them more directly to the more remote and internal Parts of the *Meatus*. 'Tis also probable, that this Ridge serves to close up and stop the Ear on which we lie, and consequently hinder the Impression of the Air on its Parts; so that it may be said to perform the same Office to the Ear, which the Eyelids, when shut, do to the Eyes.

There are three nervous Branches arising from three different Pairs of Nerves, distributed upon the cartilaginous *Meatus*; and these Branches render that Part of so fine and exquisite a Sensation, that we instantly become sensible of the small and most minute extraneous Body, insinuating itself into the Cavity of the Ear.

I now come to consider the *internal Ear*, the first Part of which, that occurs, is the *Membrana Tympani*; and tho' we cannot affirm, that this Membrane is absolutely and indispensably necessary to Hearing, since deaf Persons, upon taking the Handle of any musical Instrument into their Mouths, are by that means, without the Assistance of this Membrane, enabled to hear the musical Sounds; yet 'tis nevertheless certain, that the *Membrana Tympani* is of such Importance to Hearing, that, if any Animal has the Misfortune to have it perforated or torn, the Hearing of that Animal cannot be long preserv'd, but becomes gradually weaker and weaker, till 'tis at last quite lost and destroy'd.

This Membrane is both render'd tense and relax'd, by means of those small and minute Muscles affix'd to the *Malleus*, which is situated immediately behind this Membrane. The external Muscle, by restoring it to the State and Condition of a *perfect Plane*, relaxes it; but the internal Muscle, situated on the Surface of the *Os Petrosum*, draws it inwards, and by that means renders it more tense than it was in its natural State. But this is perform'd in such a manner, that in the Tension of the *Membrana Tympani* both Muscles act at one and the same time; whereas its Relaxation is produced by the Action of the external Muscle alone. The Reason of this Phenomenon is plainly this: As the Insertion of the external Muscle is near the Head of the *Malleus*, and the Insertion of the other somewhat farther off, towards the Extremity of the *Manubrium*, the Effect produced by the Action of the internal Muscle is augmented by the Action of the external; for, by this means, these two Actions push inwards the Extremity of the *Manubrium* of the *Malleus*, to which the Tension of the *Membrana Tympani* ought principally to be ascribed.

'Tis therefore certain, that these small Muscles act; nor is it less evident, that the *Membrana Tympani* is render'd tense by the one, and relax'd by the other, in the manner already mention'd: But 'tis no easy Task to know, on what particular Occasions they act, or what determines them to put that Membrane into the various States and Conditions necessary for receiving the vast Variety of Impressions made by different Noises and Sounds.

If we affirm, that the *Will* determines and influences them to Action, this is not at all probable, since Noises, for the most part, strike our Ears before we are aware. I should therefore be inclined to think, that the Objects themselves, according to their respective Natures, determine these Muscles to render this Membrane tense, or relax it, as Exigencies require.

'Tis absolutely necessary, that the *Membrana Tympani* should, on different Occasions, be differently disposed, that thus it may be qualified for receiving the different tremulous Motions of the Air; and, indeed, 'tis impossible it should transmit these, such as they really are in themselves, unless it was in some measure adapted to their Natures, and accommodated itself, if I may so speak, to the Impressions made on different Occasions, by assuming Degrees of Tension, fit for representing the various Tones of sonorous Bodies. If, when two Lutes are laid upon a Table, you strike a String in one with your Fingers, in order to move the corresponding String in the other, every one knows, that, before you can produce this Effect, the corresponding String must be tuned to the same Key; or, as Musicians express it, must be in Unison with the String first struck, whether its

Note be an Octave, a double Octave, a fifth, a fourth, or any other Note whatever; otherwise the Vibrations of the String which is struck, will produce but slight, and scarce perceptible, tremulous Motions in the corresponding String of the other Lute.

Since, then, the Diversity of Noises and Sounds depends upon the different Natures and Collisions of sonorous Bodies; since, for Instance, an acute Tone proceeds from a Body, whose Parts are so disposed as to render them fit for producing only the most instantaneous Vibrations, which they forthwith convey to the ambient Air; since, on the contrary, a grave Tone is excited by the Collision of a Body which is only capable of slow and protracted Vibrations, it must of course follow, that the *Membrana Tympani* does, in its various Degrees of Tension and Relaxation, adapt itself to the several Natures and States of sonorous Bodies, and assume, if I may so speak, their respective Characters. For Instance, it is render'd tense for the Reception of acute Sounds, because, in such a State of Tension, it is susceptible of quick and instantaneous tremulous Motions. 'Tis, on the contrary, relax'd for the Admission and Conveyance of grave Sounds, because, during such a Relaxation, 'tis qualified and disposed for the Reception of the more slow and languid Undulations of the Air. In short, it is rendered tense and relax'd in a thousand different Degrees, according to the various Natures of different Noises and Sounds: But I must confess, 'tis no easy Matter to comprehend the Manner in which all this is brought about; for these mechanical Motions are not subjected to our Senses, and consequently it must be very difficult, if not impossible, to explain their Natures, and the several Laws to which they are subjected.

The *Membrana Tympani*, then, receives the various tremulous Motions of the Air, and, when not disorder'd, faithfully conveys them to the other Parts of the internal Ear. But it performs these Functions in consequence of its being dry, thin, and diaphanous; and if its State is changed, with regard to any of these three Qualities, 'tis no Wonder, if the Hearing becomes of course proportionably duller.

'Tis pretty probable, that the Air lodged in the internal Ear, being put into a Commotion by the tremulous Motions of the *Membrana Tympani*, serves at least in some measure to convey these Motions to the immediate Organ of Hearing: But 'tis by no means probable, that so small a Quantity of agitated Air is able to put the *Os Petrosum*, or rather the Labyrinth contained in it, into a Commotion sufficiently strong for the Purposes of Hearing; so that we may, with greater Appearance of Truth, affirm, that the Agitations of the *Membrana Tympani* are communicated to the *Malleus*; that the *Malleus* conveys them to the *Incus*; and the *Incus* to the *Stapes*, whose Agitation at last puts the *Os Petrosum* and Labyrinth into a Commotion; just in the same manner as the intermediate Air between two Lutes, placed on the same Table, is not able sufficiently to convey the tremulous Motion of the String of one of the Lutes to the corresponding String of the other; unless the String, which is struck first, agitates the wooden Plates to which it is affix'd, these Plates the Table, the Table the Plates of the other Lute, and these Plates at last that particular String affix'd to them, which is in Unison with the String which was first struck. Now, that this Effect is produced precisely in the manner now specified, is plain from this Circumstance, that if either of the Lutes is held at never so little a Distance from the Table, the Experiment does not succeed.

The Nature, Mechanical Structure, and Articulation of these three small Bones, seem very much to favour this Conjecture; for, in consequence of their Hardness, Driness, and Smallness, they must be very easily put into a Commotion. The *Manubrium* of the *Malleus* is uninterruptedly affix'd to the *Membrana Tympani*, in its whole Length: Hence 'tis obvious, that this Membrane cannot be put into Commotions, without communicating its tremulous Motions to the *Manubrium*, and so on successively to the other Bones, which are join'd by a mutual Articulation; and, as this Articulation is without the Intervention of Cartilages, it must of course facilitate the Communication of Motions from one to another.

'Tis no easy Matter to determine the precise Use of the *Musculus Stapedis*. However, we may reasonably conjecture, that by drawing the Basis of the *Stapes*, which is placed immediately above the *Fenestra Ovalis*, a little outwards, it renders the Pellicule, with which the superior Part of this Basis is cover'd, tense; and that, according as it renders it more or less tense, it gives it a proportionably greater or less Disposition for receiving the tremulous Motions of the *Membrana Tympani*, in order to be convey'd to the *Vestibulum* and *Labyrinth*.

We may farther add, that this Muscle, by drawing the *Stapes*, which is otherwise pretty flexible, renders it in some measure tense, and keeps it in a firmer State, and consequently disposes it for the better Reception of the tremulous Motions of the *Malleus* and *Incus*.

On the Sides of the *Tympanum* are two *Meatuses*, or Conveyances, one of which terminates in the Palate, but the other is continued to the Sinuses of the *Apophysis Mastoidea*. 'Tis

not improbable, that the Air contained in the *Tympanum* retires into these two *Meatuses*, when the *Membrana Tympani* is drawn inwards, and that it again returns into the *Tympanum*, when this Membrane is relax'd; otherwise the Motion of the *Membrana Tympani* might be obstructed by the Resistance and Elasticity of the Air; and, indeed, one may reasonably believe, that the Return of this Air into the *Tympanum* favours and assists the Reduction of that Membrane to its natural Situation.

The Conveyance from the Palate to the Ear supplies a Fund of Air necessary for renewing, at Intervals, that which is lodg'd in the *Tympanum*: But, that the Coldness of the external Air may not prove injurious to the Parts of the internal Ear, it undergoes all those Modifications, which are necessary to render it suitable to the Parts to which it is to be convey'd, whilst it ascends thro' the Nostrils, and during the Whole of its Passage to the *Tympanum*. Neither by this means does it lose that Degree of Elasticity, which renders it fit for the Purposes to which it was destin'd. For this Reason the Air which returns from the Lungs, and which is tainted with impure Vapours, cannot easily enter this *Meatus* or Conveyance, since its Orifice is so situated and disposed in the Mouth, as rather to admit the Air drawn in by the Nostrils, than that which returns from the Lungs. Almost every one believes, that some deaf People are, by means of this Conveyance, enabled to hear the Sounds produced by such musical Instruments as have Strings; and since their Deafness is owing to a Defect of the *Membrana Tympani*, as to the Performance of its Office, it is not to be wondered at, if the tremulous Motions of the external Air being communicated to the *Tympanum* by means of this Conveyance, these Persons should hear the Sounds of musical Instruments: But in order to shew, that those Commotions of the Air, contained in the *Tympanum*, which are produced by the Impulse of the Air carried through the *Meatus* or Conveyance, are not sufficient to enable deaf Persons to hear the Sounds of any musical Instruments, let it be observed, that these Persons must lay hold of the Handle of the Instrument with their Teeth, otherwise they will not hear the Sound at all, or at least not so distinctly. Hence we may infer, that the Teeth, being by this means put into a Commotion, communicate a tremulous Motion to the Jaw-bone, the Temporal Bones, and the small Bones more immediately employ'd in the Offices of Hearing, and this seems to favour my Conjecture relating to the Use of these small Bones; for People, who are by no means deaf, hear the Sounds of musical Instruments in a stronger and more forcible manner, if, after having shut up their Ears, they lay hold of the Handle of the Instrument with their Teeth. There are also some deaf Persons, who hear far better when the Voice is utter'd above the Crowns of their Heads: In these Persons the whole Cranium is, by this means, put into a Commotion, which is successively convey'd to the *Ossa Petrosa*, and all the other Parts employ'd in Hearing.

The *Fenestra Ovalis* is entirely block'd up by the Basis of the *Stapes*. After this dry and small Bone, one of whose Sides is covered with a Membrane, and whose Basis is very slender, has received the tremulous Motions of the other two Bones, and of the Air contained in the *Tympanum*, it can easily communicate them to the *Vestibulum*, and to the Air contain'd in it, and thence to the *Cochlea*, and the three semicircular Duets.

Besides the *Fenestra Ovalis*, there is another called the *Fenestra Rotunda*, which is shut up by a Membrane not unlike the *Membrana Tympani*. We may conjecture, that this *Fenestra Rotunda* receives the tremulous Motions of the Air contained in the *Tympanum*, and conveys them to that included in the inferior Part of the *Cochlea*, in which the Air being strongly compress'd, for want of an Exit, is excellently calculated for putting the *Lamina Spiralis* into Commotions; and thus the tremulous Motions of the Air are convey'd to the immediate Organ of Hearing itself, of which we come now to speak.

This Organ, then, is comprehended under the general Name of *Labyrinth*, which, being included in the *Oss Petrosum*, consists of two principal Parts, the *Cochlea*, and the *Vestibulum*, together with their three semicircular Duets.

As for the *Cochlea*, no one can doubt of its being a constituent Part of the immediate Organ of Hearing, since this is sufficiently proved by its Make and Structure; for, first, the *Spiral Lamina*, which is a principal Part of it, is hard, dry, slender, and easily broken, all which Conditions are absolutely requisite in Bodies susceptible of tremulous Motions. Secondly, this *Lamina* does not lie within the semioval Spiral Canal; but is stretch'd out betwixt the *Spindle* to which it adheres, on one Side, and the slender Membrane which is join'd to the Surface of this Canal, to which it adheres, on the other; so that this Situation of the *Spiral Lamina* remarkably favours the Disposition or Tendency it ought to have, to be easily and readily put into a Commotion.

Thirdly, the *Spiral Lamina*, by means of this Pellicule, divides the Whole of the Spiral Canal into two Orders, as it were, of Gradations, whose Construction resembles that of a winding Shell, which rest upon the same Spindle, and of which the superior does not at all communicate with the inferior Order.

The *Fenestra Rotunda* opens within the inferior Order, and has no Communication either with the superior Order of Gradations in this Canal, nor with the *Vestibulum*: By this means, therefore, the Air included in the inferior Order is both agitated by the tremulous Motions of the *Fenestra Rotunda*, and by the Vibrations of the Air contained in the superior Order of Gradations of the semioval Canal; which is itself put into a Commotion, both by the tremulous Motions of the Air contained in the *Vestibulum*, with which it communicates, and also by the vibratory Motions of the Air contain'd in the inferior Order of Gradations in this Canal: And thus the undulatory Motions of the *Spiral Lamina* must be rendered more brisk and lively, since it is agitated on both Sides.

Fourthly, the Spiral Figure of this *Lamina* seems greatly to support the Truth of the above-mentioned Circumstances; for, whilst it makes two Circumvolutions and an half round the Spindle, it, in several Parts, receives the vibratory Motions of the Air; and this same curious Piece of Mechanism is observ'd in the Structure of the Tongue and Nose.

Fifthly, when the large Branch of the soft Portion of the Auditory Nerve arrives at the Basis of the *Cochlea*, it is divided into a great Number of smaller Branches, which, passing thro' all the small *Meatuses*, with which the *Spindle* is perforated, are distributed to the various Windings and Meanders of this *Spiral Lamina*, where they lose themselves. In a Word, this *Lamina* is not only calculated for receiving the vibratory Motions of the Air, but its Structure also ought to be look'd upon as a convincing Proof, that it is qualified and disposed for accommodating itself to all their different Characters and Degrees of these Motions; for since it is broader at the Beginning of its first Circumvolution, than at the Extremity of its last, and since the Breadth of its other Parts are, in like manner, proportionably diminished, we may venture to affirm, that its broader Parts are only fit for the Reception of slow and languid Vibrations, which are productive of grave Tones, since they may be put into a Commotion without its other Parts undergoing any Change; and, *vice versa*, that, when its narrow Parts are struck, their Vibrations are brisk and lively, and consequently produce acute Tones or Sounds; just in the same manner as the broad Parts of a Steel-spring excite slow and languid Vibrations, which are productive of grave Tones; whereas its narrow Parts excite more frequent and brisk Vibrations, and consequently are productive of acute Tones. In a Word, therefore, according to the various Commotions of the *Spiral Lamina*, the Nerves, distributed thro' its Substance, receive the various Impressions of the Air, which exhibit and represent various Tones, or Modulations of Sound.

As for the *Vestibulum*, and the three semicircular Duets, tho' some imagine, that they only serve to heighten and augment the Impression of the tremulous Motion of the Air; and others, that their Use consists in diminishing and lessening this Impression; yet the following Reasons induce me to think, that they are constituent Parts of the immediate Organ of Hearing.

First, all Birds have only three Canals or Duets, bended into a semicircular Form; and a fourth, which is strait, and shut at one of its Extremities, but which, with the others, opens into the common Cavity, which serves instead of a *Vestibulum* to them. These three Duets are also found in Fish; but the *Cochlea* is neither found in Birds, nor in Fish, and yet both hear. 'Tis therefore obvious, that these semicircular Canals must be the immediate Organ of Hearing, both in the one and in the other. Why, then, should not they be subservient to the same Uses in Man, since, in all these three Species of Animals, their Structure is alike? Hence it follows, that these three semicircular Duets must, at least, be a constituent Part of the immediate Organ of Hearing; and that thus that Organ must consist of two essential Parts.

Secondly, nobody doubts, but that the soft Portion of the Auditory Nerve conveys the Impressions of Sounds to the Brain; but two Branches of this soft Portion enter the Cavity of the *Vestibulum*, and are diffused and expanded into the Filaments and Membranes, which constitute the internal Coverings of the semicircular Canals: Hence I conclude, that this Part of the *Labyrinth* also constitutes a Part of the immediate Organ of Hearing.

Thirdly, such is the Mechanism and Structure of the *Vestibulum*, and semicircular Duets, that we may, upon good Grounds, suppose, that the Impression of Sounds is augmented and heighten'd in their winding Meanders, and consequently better qualified for putting the Nerves, dispersed in these Places, into a Commotion.

But what I just now asserted of the *Spiral Lamina*, which is, that it did not simply receive the Vibrations of the Air, and that all its Parts were not indiscriminately adapted and accommodated to the same Tones or Sounds, holds also good with regard to these semicircular Duets. Each of these Duets, in Figure, resembles two Trumpets, whose narrow Extremities are joined together; for both Orifices of these Canals, in the Cavity of the *Vestibulum*, are found to diverge like the wide Extremity of a Trumpet; and their middle Part, which is just-

ly represented by the Place where the two Trumpets are join'd, is proportionably narrower. Two of these Canals have one common Opening within the *Vestibulum*, and at the same time expand their Extremities very wide, in Comparison of the others: But Experience proves, that the larger Circles, at the broad Extremity of a Trumpet, may be put into Commotions, at the same time that the lesser Circles are subjected to no sensible Change or Commotions whatsoever; and also, that the Vibrations of the larger Circles are slower, and more sensible, and that, in this Case, the Trumpet produces grave Sounds. On the contrary, 'tis equally confirm'd by Experience, that when the lesser Circles of this wide Extremity of the Trumpet are put into Commotions, the larger in the mean time remaining without any sensible Motion, an acute Sound is produced by the Trumpet; because the Vibrations of these smaller Circles are brisker, and more frequent, than in the former Case. The same holds true with regard to the *semicircular Canals*; for their wider Parts may be put into Commotions, whilst the others remain unmoved; at which time the Vibrations of these Parts will be slow, a Circumstance necessarily productive of grave Sounds. On the other hand, when the narrower Parts of these Canals happen to be put into a Commotion, whilst the wider and more diverging remain unmoved, an acute Tone will necessarily be form'd; because the Vibrations of these narrower Parts will be proportionably quicker. From what has been said, we may then justly conclude, that the *Cochlea*, and *semicircular Ducts*, are common and immediate Organs, which not only receive the vibratory Motions of the Air in general, but also the genuine Qualities and different Characteristics of Sounds, according to the different Parts of these Organs, which happen to be put into Commotions.

It may possibly be objected, that these semicircular Canals are too solid, and adhere too strongly to the rest of the *Os Petrosum*, to be so easily moved in their various Parts, and in so many different manners: But, besides that a considerable Noise can scarce be excited without the *Os Petrosum* being put into a Commotion, when these Circles are prepared for the sake of Anatomical Demonstrations, 'tis obvious, that they are only surrounded with a kind of spongy Substance. In the Heads, indeed, of old People, the bony *Laminae*, which cover these Circles before and behind, are pretty hard; but that Substance which fills up the Space round about these Circles, is of a more porous Nature; for which Reason they are always sufficiently free and disengaged, and easily susceptible of Commotions and Vibrations.

The mutual Sympathy and Connexion between Hearing and Speech generally uses to be accounted for by the Communication of the soft Portion of the Auditory Nerve with those Branches of the fifth Pair of Nerves, which run off, and are distributed to the Parts destin'd for the Formation and Modulation of the Voice; for Anatomists think, that the Commotion of the Nerves of the Ear is propagated to the Nerves of the fifth Pair; whence the Spirits which flow from the Brain into those Nerves, which are distributed to the Parts destin'd for the Formation of the Voice, dispose their Muscles in such a peculiar manner, as to form Sounds exactly corresponding and similar to the Impressions made on the Brain by the Voice. For this Reason 'tis said, that Men and Birds can mutually incite each other to sing; and that those who are deaf from their Birth, must of course be dumb too.

Anatomists are also of Opinion, that the Communication of the second Vertebral Pair with the external Ear, is the Reason why, upon hearing the least Noise, we turn our Heads to the Quarter whence it comes; and why the Whole of the Body is disposed to various Motions, according as the Causes of the Noise are imagined to be hurtful or beneficial to itself: And since these Nerves communicate with those of the Lungs and Heart, hence it is, that we become sensible of proportionable Alterations in our Pulse and Respiration, according to the Diversity of Noises. But all are not agreed with regard to the Effects of all these Communications.

DISEASES of the ORGAN of HEARING.

Having thus given an Account of the Structure, and several Uses, of the Organ of Hearing, it now remains, that I consider the several Disorders incident to the Ear: And in executing this Part of my Design, I shall have a particular Regard to the Structure of this Organ, that it may appear, how indispensably necessary a Knowledge of the Parts is, in order to explain and account for its Diseases. Neither shall I follow the several Divisions of these Disorders commonly proposed by different Authors; but, adhering to the Method I have hitherto observed, I shall first examine the Disorders incident to the external Parts of the Ear; then I shall consider those which attack the *Membrana Tympani*, the *Tympanum*, and *Labyrinth*; after which I shall take a View of those which affect the Auditory Nerve itself; and, in the last place, shall explain and account for what we call a *Tinnitus Aurium*, since it is a common Symptom in all the Disorders incident to these Parts; and whatever I advance shall be supported by the Authorities of good Writers, and the

the Discoveries which I myself have made on the several Occasions, when I have had an Opportunity of dissecting the Ear.

The Symptom which most commonly attacks the external Parts of the Ear, is a Species of Pain which the *Greeks* called *Otalgia*: This Symptom generally seizes the *Concha*, and the Whole of the *Meatus*, as far as the *Membrana Tympani*; and Experience affords us a certain, but melancholy Proof, that it is accompanied with Punction, Erosion, Tension, Pulsation, and a Sense of Weight.

Though 'tis not necessary on this Occasion to explain the Nature of Pain in general, yet 'tis not amiss to observe, that it arises from a Solution of Continuity in those Particles, by whose Union animal Bodies are originally formed; for this Solution of Continuity throws the animal Spirits into preternatural and tumultuous Commotions; and in these two Circumstances the very Nature and Essence of Pain consist.

Upon this Hypothesis 'tis obvious to every one, that whatever can occasion a *Solution of Continuity* in the Particles of that Membrane which covers the *Meatus* of the Ear, and excite this irregular and tumultuous Motion of the animal Spirits, must of course prove the Cause of Pain. Thus Inflammations, extraneous Bodies falling into the *Meatus*, Worms, and, in a Word, whatever excites Pain in other Parts, are likewise capable of producing the same Effect in the Ear. The Antients, indeed, imagin'd, that Pains of the Ears might be produced without Inflammation, and without the Concurrence of what they called a conjunct Cause: Hence they accounted for these Pains from abstract and immaterial Distemperatures, which, according to them, proceeded for the most part from an Excess either of Heat or Cold. But since these immaterial Distemperatures have only an Existence in the Imagination, and not in the Nature of Things; and since the Causes exciting these violent Pains may be found in the Parts themselves; I shall give my Sentiments on this Particular, in as concise a manner as I possibly can.

I find from Experience then, that the Wax lodged in the Ear is bitter and viscid, and consequently impregnated with acrid lixivial Salts, mixed with pinguous and oily Particles. These Principles render its Qualities pretty much the same with those ascribed to the Bile, with which it agrees in many Particulars; so that if on any Occasion these saline Juices should become active and disengaged, or, being exalted above their common Pitch, should exercise their Spicule or Points more briskly than in a natural State, 'tis evident they must create great Pain and Uneasiness in the *Meatus* of the Ear, on account of the exquisite Sensibility of the Part. But this Effect is for the most part produced either by Heat or Cold; for Cold, by condensing this Wax, and rendering it more viscid, is the Cause of its becoming adhesive, and blocking up the excretory Ducts of the Glands, just as it happens in other neighbouring glandular Bodies, in which a like Action of the Air produces similar Obstructions. Hence it follows, that the saline Juices, having acquired a Motion, must distend and tumefy the Glands in which they are lodg'd; and that being rendered more acrid by their long Continuance, they must vellicate the tender Extremities of those Nerves dispersed thro' the Membrane of the *Meatus*: Hence arises a terrible Perturbation of the Spirits, and consequently an acute and racking Pain of the Ear. External Heat, on the other hand, divides and colliquates the saline Juices of this Wax, and by so doing produces the same Effect. The same is observed in Pains proceeding from the Bile excited by an Excess of Heat or Cold in the Parts destined for Nutrition.

But this Wax is not the sole and only Cause of these violent and racking Pains; for it often happens, that an acrid and saline Serum, discharged from the Glands of the Ear, excites a Pain in the *Meatus*; and this plainly appears in the Suppurations which happen in that Part; for when the Matter discharged is of a saline or acid Quality, it vellicates the Membrane of the *Meatus*, and excites that ungrateful and uneasy Sensation which we call *Pain*.

As for the Difference of Pains in the Ears, I think they may be accounted for in this manner: When the Particles of Wax, or other Humours contained in the Glands, are become saline, acute, and rigid, and, by their tumultuous Agitation, put the Filaments of the *Meatus*, which is full of Nerves, into a Commotion, they excite a pricking Pain, which happens in all Inflammations, but more especially in Persons of dry and bilious Constitutions, whose Humours abound with acid and saline Juices of this Kind; as also in People of melancholic Habits, whose Serum is also of an acid and saline Nature. When these Salts become very acrid and corrosive, they produce, as it were a Sense of Erosion or Gnawing, which is principally observed in Ulcers of these Parts. When the Wax, whilst as yet contain'd in the Glands, ferments either by itself, or in Conjunction with any other Substance, the Particles of the Membrane are extended and dilated, and hence arises a Sense of Tension. And, lastly, when the Glands are become turgid by the too great Quantity of their Contents, a Sense of Weight is the Symptom of which the Patient complains. As for that Species of Pain, which is accompany'd

accompany'd with Pulsation, I am of Opinion, that the *Meatus* is never attack'd by it, except in Cases where there is an Inflammation.

The Violence of this Pain has something of a very singular and surprising Nature in it; for it scarce ever seizes the Patient without bringing along with it an acute Fever, which is attended with an Incapacity of Sleep, Deliriums, Convulsions, and Faintings; which Symptoms very often prove mortal, as appears from the Observations of many Authors. But that we may conceive more justly the Violence of this Pain, we are to observe,

First, that the Membrane, which lines the *Meatus Auditorius*, is very slender, full of Nerves, and of the same delicate Texture with the nervous Coat of the Stomach and Intestines; and that it has not, like them, a villous Crust to guard and defend it against the Acrimony of the Humours.

Secondly, this Membrane is stored with innumerable Nerves, arising from the fifth Pair, the hard Portion of the Auditory Nerve, and the second Vertebral Pair; so that this Membrane may justly be said to contain more Nerves, *ceteris paribus*, than any other in the human Body.

Thirdly, 'tis certain, that those Membranes which adhere to Bones, are possess'd of a far more exquisite Power of Sensation than others; which may probably be owing to this, that being firmer, more tense, and adhering to the Bones, by means of all the minute Vessels with which they supply them, 'tis impossible they should be vellicated, without at the same time all their minute Filaments being put into a Commotion. Hence it is, that the *Periosteum* and *Pericranium* are endow'd with so acute and exquisite a Sense of Pain; and perhaps, for the same Reason, violent and racking Head-achs are owing to the Adhesion of the *Dura Mater* to the superior Part of the *Cranium*, as has been observed by some. This may easily be applied to the Membrane of the *Meatus Auditorius*, which is partly bony, and partly cartilaginous; and as that Part of the Membrane which lies upon the Cartilage, is not so tense as that which lies upon the Bones, hence it happens, that those Pains which are felt in the Bottom of the Ear, and which have their Seat near the bony Part of the *Meatus*, are of all others the most severe and racking.

Fourthly, the Connexion of this Membrane with the neighbouring Parts, which are endowed with an exquisite Power of Sensation, may also contribute very considerably to the Violence of this Pain; for this Membrane is extended as far as the *Membrana Tympani*, which communicates with the Membranes of the *Tympanum* and *Labyrinth*; and, by their means, with the *Dura Mater* itself. If we carefully consider these Circumstances, we have no Reason to be surpris'd, that the Pains of the *Meatus* should prove so severe and torturing.

Though most of the Symptoms which accompany the Pains of the *Meatus*, may also occur in Pains of other Parts; yet as these Symptoms are most common, and most violent in it, I thought it might not be improper to account for them.

When the Pain proceeds from an Inflammation, 'tis no difficult Task to account for the Fever, and the Train of other subsequent Symptoms; but as I am thoroughly perswaded, that the Violence of the Pain alone may produce these Symptoms, without either Inflammation or Tumor, I shall confine myself precisely to this Supposition, and consider the Subject in this Light.

I shall begin then with that acute Fever, which almost always accompanies a Pain of the Ear; and I believe it may be owing to this, that the Spirits being hurried into preternatural and tumultuous Agitations by the Violence of the Pain, augment the Motion of the Heart and Arteries: And hence proceed such an elevated Pulse, and an intense Heat, as are observable when the Mind is under the direct Influence of any lawless and exorbitant Passion, especially that of Anger. But this accelerated Motion of the Heart and Blood could not produce a Fever, without inducing a Change on the Principles of the Blood itself. Now 'tis no great Difficulty to conceive, that when, by these strong and vigorous Contractions of the Heart, the Parts of the Blood are more divided and broken, its most active Parts should be then exalted, and its oily Part, whose accelerated Motion produces the febrile Heat, dissolved. Besides, the acid and corrosive Juices of the Wax, and other Humours accumulated in the Ear, may again be mixed with the Mass of Blood, and there produce a preternatural Fermentation, in which the very Essence of a Fever consists. We shall be easily able to form a Judgment of the Nature of this Fever, If we consider, that Fevers, in Catarrhs and Rheums, are no otherwise produced, than by the Commixture of the acrid Juices, which, separating from the Mass which constitutes and cherishes the Rheums, join themselves to the Blood.

Though what Du Verney says of the Distempers of the Ear merits Attention, I must apprise the Reader, that a great deal of what he says with respect to Fevers, is not to be depended on, being mere Jargon.

The Incapacity of Sleep depends upon the preternatural Agitation of the Spirits, which, being irritated by the Violence of

the Pain, flow continually into the Parts, and do not permit them to cease from performing their Functions.

The *Delirium* does not differ from the Incapacity of Sleep, except that, in the former, the Spirits having acquired an irregular Motion in the Brain, imprint, as it were, many Traces upon the Memory and Imagination at one and the same time: Hence arises that surprising Confusion of Ideas, which these Spirits exhibit to the Mind.

Upon this Hypothesis the Convulsions are also very easily accounted for, and explained; for since the involuntary Contraction of the Muscles depends upon the tumultuous Motions of the Spirits, no more is requisite, than that the saline Juices should stimulate the Nerves dispersed in the Membrane of the *Meatus*, in order to transmit this Stimulus or Irritation to all the Spirits, by the Communication of the Nerves and Membranes; and this Irritation afterwards proves the Cause of Convulsions in the Muscles. Besides, it may happen, that these acrid Juices should return into the Mass of Blood; and being carried to the Brain, there irritate the Origins of the Nerves.

In order to conceive in what manner the *Lipothymia* or Fainting is produced, let us only consider, that whilst the Spirits flow with Rapidity, and in great Abundance, into the muscular Fibres, which contract and shut the Orifices of the Heart, they stop the Motion of the Blood; and that when this Contraction ceases, and the Blood again enters the Ventricles of the Heart, the Pulse begins again to beat, and Warmth returns. The Uneasiness about the Heart, and the Oppression of the Breast, which are felt in this Case, sufficiently prove that the Fainting proceeds from the Cause now assigned; and indeed this Uneasiness of the Heart may sometimes continue so long, as to prove the immediate Cause of Death.

As an Instance of a violent Pain in the Ear accompanied with the most formidable Symptoms, I shall only bring the fourth Observation, of the first Century, of *Fabricius Hildanus*, because it seems to comprehend all the principal Symptoms which occur in this Disorder. "Whilst," says he, "a Girl of ten Years of Age was taking her Diversion with her Companions, a Glass Bead, as large as a Pea, slipped into the Cavity of her Left Ear. Her Mother, being apprised of the Accident, called a Surgeon to extract it; but his Attempts were in vain. Then a second, a third, and a fourth, were called at different times; but the Patient was so far from being relieved by any of them, that the Glass Globule was lodged still deeper and deeper by their Attempts to extract it. Upon this the Mother despaired of the Possibility of dislodging it; and tho' she was grieved for the Fate of her Daughter, who was rack'd with uninterrupted Torments, yet she resolved to submit to the Will of Heaven, and patiently wait for the Result of Nature's own Operation. Soon after, the Pain of the Ear was indeed allay'd; but all that Part of her Head, as far as the Longitudinal Suture, was excessively painful, both in the Night and Day-time, tho' her Pains were acute, or the Reverse, according to the State and Constitution of the Air. Her Torments were most severe in moist and rainy Weather, such as what we usually have in the Winter and Autumn. Besides, her Left Arm was seized with a kind of Stupor, which reached as far as her Thumb and fore Finger, and affected her Loins, her Leg, and her Foot; and, in short, her whole Left Side languished under these Stupors. But her Torpors afterwards assumed another Shape; and in the Night-time, and during cold and moist Weather, appeared in violent Pains of her Shoulder, Arm, and Leg. She was continually afflicted with a dry Cough; and her monthly Evacuations, being in a great measure suppressed, flowed either very sparingly, or only once in the Space of three Months. After she had groaned under this Load of Misery for four or five Years, she at last began to be now-and-then seized with Epileptic Fits, and the Arm itself fell into an Atrophy. Her Mother, startled at the Appearance of such formidable Symptoms, employed several Physicians, Surgeons, and Empirics; and as she had no Pain in her Ear, (for it seems the Intensity of her other Pains had in a manner destroyed it) the only complained of the other Symptoms, neglecting and overlooking the original Cause of the Disorder. But all their Efforts for her were vain and fruitless; and the Symptoms were so far from being abated, that they were rather augmented. At last, in the Month of November 1595. she apply'd to me (*Hildanus*). I purged her several times, anointed her Shoulder, her Arm, and the rest of the Parts affected, with hot and anodyne Oils; and, in short, apply'd every thing which to me seemed calculated for removing her Disorder; but, notwithstanding all my Attempts, I had as little Success as those who had gone before me. When I saw, that her Disorder would yield to no Medicines, however proper, I began to despair of her Recovery; for I was entirely ignorant of the Cause of her Disorder, unless it might have possibly proceeded from a Catarrh. In the meantime, whilst I was considering with myself what more efficacious Measures I should take for her Relief, she herself began to give me an Account of the Cause of her Disorder, though

“ though she was not sensible of its being so ; for she told me ;
 “ that, about eight Years ago, a small Glass Bead had slipped into
 “ her Ear, which could not afterwards be dislodged. Upon
 “ hearing this Circumstance, I began to suspect, that it might
 “ possibly be the Cause of her subsequent Torments : And
 “ though she was very averse to an Operation, on account of
 “ the fruitless Attempts of the other Surgeons, when her Dis-
 “ ease was recent, yet at last she submitted to undergo it ;
 “ upon which I happily, and without any Violence, extracted
 “ the Bead, though it was lodged very deep, near the *Tym-*
 “ *panum*, and stuck very firmly in the Sordes of her Ear. The
 “ Pains of her Head, and of the other Parts of her Body, soon
 “ after disappeared, and next Night she was a little better :
 “ Thus, by gently anointing the Parts with Oil of Worms,
 “ she gradually recovered. Her Pains, her Stupors, her Epi-
 “ leptic Fits, and all her other Symptoms, disappeared ; her
 “ Arm also was restored to its natural State ; and, by the pecu-
 “ liar Blessing of Heaven, she has continued in perfect Health
 “ ever since.”

Many things relating to this Observation of *Hildanus* might, on this Occasion, come under our Consideration ; but as I have already explained the principal Symptoms with which the Patient was afflicted, I shall only insist on some of the most peculiar Circumstances of her Case. Pains then, and Convulsions, seized the Whole of her Left Side, and reached as far as her Foot. *Hildanus* accounted for this Symptom by saying, that the hard Portion of the auditory Nerve was distributed through all the Arm and Thigh ; but since this Distribution is purely chimerical and imaginary, I shall endeavour to account for this Symptom in a manner more consonant and agreeable to the real Structure and Conformation of these Parts. I say then, that the Irritations and tumultuous Motions of the Spirits were, by the Communication of the second vertebral Pair, transmitted and conveyed to all the Nerves proceeding from the spinal Marrow on that Side ; which would not have happened, if the Irritation had been communicated to the Brain ; for in this Case 'tis probable, that the Patient would have been afflicted with Pains and Convulsions in all the Parts of her Body. But on the Supposition, that the spinal Marrow on her Left Side was affected, we may easily conceive in what manner the Disorder was communicated to her Arm and Leg, since we very well know, that all the *vertebral Nerves* of that Side communicate with each other by transverse Branches, after they have gone out of the *Foramina* of the *Vertebrae*.

All the Symptoms were aggravated in the Night-time, and in rainy Weather, on account of the Humidity of the Air, which, as it rendered the Glands and Membranes of the *Meatus* tumid, was the Cause of their embracing the fatal Bead more closely ; and hence the Irritation was augmented.

The Stupors might, in all Probability, arise from this, that the irritated Spirits opened and dilated the Orifices of the Nerves to such a Degree, that they not only gave Admission to the Spirits themselves, but also to some gross Substances, which, being crowded into their small Ducts, produced a kind of Obstruction, sufficient to stop the Motion of the Spirits. A Circumstance abundantly able to bring on a Stupor ! Besides, these gross Substances, being rendered more acrid by their Continuance, must of course have augmented the Pains and Convulsions. And when these made their most violent Attacks on the Patient's Arm, its Nerves must have been block'd up with such a Redundance of this extraneous and noxious Matter, as to interrupt the Motions of the Spirits : Hence the Arm was emaciated and wither'd, as in a Palsy.

The Bead being at last extracted, the Irritations caused by it, and consequently the Pains and Convulsions, ceased ; upon which the Spirits again resuming their usual Motions, dissipated all extraneous and noxious Substances : Hence the Arm was restored to its former Motion and Vigour.

I now come to treat of the several Measures to be taken in the Cure of Pains of the Ears ; and these ought to vary, according to the different Causes which produce the respective Disorders. As for those Pains of the Ears produced by Cold, they are sometimes cured only by removing the external Causes ; or, in other Words, by defending the Ear from the Cold and Winds, and applying to it every thing that can warm it, such as greasy Wool, or hot Bread dipt in Spirit of Wine. But for the most part the Pain does not yield to these first Applications, in which Case we must have recourse to general Remedies. Venesection is necessary, in order to prevent the Congestion of the Matter pent up by the Cold : But Purgatives ought not to be exhibited, till the Pain is somewhat abated. Fomentations in the mean time are used with Success, or Injections of the Juice or Decoction of Bawm, Hyssop, Calamint, Origanum, and Marjoram ; to which may be added a few Drops of the Gall of an Ox, or of the Oil of bitter Almonds, Chamomile, Cloves, or Anise ; and some Physicians highly recommend the Practice of stopping the Ears with Cotton impregnated with Musk. 'Tis no difficult Matter to account for the Effects of these Medicines, since they are all impregnated with a highly penetrating volatile Salt, which, by warming all the Parts, opens the

Pores and Emunctories of the Glands ; and promotes a Discharge of the peccant Matter pent up and detained by the Action of the Cold.

Pains of the Ears, proceeding from an Excess of Heat, are for the most part carried off by general Remedies, and especially Venesection, which is absolutely necessary, in order to prevent the Fluxion and Inflammation which might otherwise seize the Parts affected. During the Use of these Remedies, we may very successfully use Injections of Milk beaten up with the White of an Egg ; and for this Purpose Womens Milk is far more proper than any other whatsoever. Injections may be also made of some emollient and cooling Decoctions, in which a proper Quantity of the Oil of sweet Almonds has been diluted. The Oil of Eggs is also highly extoll'd in this Case, by *J. de Vigo*. We may also apply over the Ear some anodyne and emollient Cataplasim ; and, when the Pains are extremely violent and acute, we must have recourse to Narcotics, which are not only to be mix'd with the topical Applications, but may also be exhibited internally. All these Remedies are so well known, and so universally us'd, that I shall not spend Time in accounting for their Effects.

When Pains of the Ears are produced by Defluxions of an acrid and saline Serum, we in that Case use the Water of *Carduus Benedictus*, in which Millepedes, Earth-worms, and Ants Eggs, have been boiled ; to this Decoction we may also add a few Drops of the Oil of Box. As these Remedies abound in a volatile alkaline Salt, they destroy that Acidity of the serous Humours, which was the primary Cause of the Pain.

Another Disorder to which the *Meatus Auditorius* is subject, is Inflammation, which is generally succeeded by Abscesses and Ulcers. This Inflammation is the Consequence of Wounds or Contusions in these Parts, and may even be produced by some Fevers, as well as a Pleurisy, a Quinsy, and several other Disorders of an inflammatory Nature. An Inflammation may happen in the *Meatus Auditorius* in two Manners : First, by an Obstruction of the Glands, which, by compressing the Vessels, is the Cause of the Blood's stopping, and bursting the Vessels, in which it is contain'd. Secondly, an Inflammation may be produced in the *Meatus*, by the Wax acquiring such a Degree of Acrimony, as to corrode the Vessels, and by that means occasion an Extravasation of the Blood. However, this Inflammation, and the subsequent Abscess, have nothing peculiar in their Symptoms, except the Violence of the Pain, of which I have already spoken.

As for the Ulcers of the Ears, they are form'd in the same manner with Ulcers of the other Parts, either by the Breaking of an Abscess, or by the Acrimony of some Humour. I generally observe, that a very large Quantity of Matter is discharged from these Ulcers, and that they are not cur'd without a considerable deal of Difficulty, especially when they happen in the bony Part of the *Meatus*. The great Quantity of discharg'd Matter is supply'd, not only by the suppurating Blood, but also by the Glands, which, being irritated by the Pus, furnish their excretory Ducts with a large Quantity of Liquor. As to the Difficulty of curing these Ulcers, 'tis owing to this Circumstance ; that, being always moisten'd by the Humours flowing from the Glands, 'tis impossible they should be dry'd up, till that glandular Discharge be remov'd. Besides, the Matter secreted from these Glands being of an acrid and saline Quality, must, of Consequence, prevent their Reunion and Cicatrization. The same Symptom occurs in Ulcers of the Nose, and salival Ducts. Ulcers form'd in the bony Part of the *Meatus* are with more Difficulty cured, than those appearing in its cartilaginous Part ; because the bony Part of the Canal declines towards the *Membrana Tympani*, and has a considerable Depressure at the Place where it declines, which is the Reason that the Pus is with Difficulty convey'd out of it ; whereas the cartilaginous Part of the *Meatus* declining towards the *Concha*, Pus, and other offensive Substances, are easily discharged from it, and are not retain'd, as in the bony Part of the *Meatus*.

In old and fordid Ulcers of the Ears, Worms of different Sizes are sometimes discharg'd along with the Pus, as we may see in the Observations of *Forstus*, *Schenkius*, and in the *German Ephemerides*. I shall not here inquire, whether these Worms are produc'd by the Corruption of the Humours, or whether the Heat of these Ulcers only hatches the minute Eggs, which the numberless little Insects floating in the Air may have deposited on the Parts, since I shall afterwards have Occasion to handle this Subject.

Besides the Pus discharg'd from the Ears, when Ulcers are form'd in them, we observe, that the Ears almost of all Children discharge a great deal of Humidity, and that this Evacuation is very conducive to the Preservation of their Health. For this Reason we ought to beware of stopping this Discharge, lest the Children should, by that imprudent Step, be thrown into convulsive or epileptic Fits. This Circumstance has induced some People to believe, that not only this Liquor, but also the clear and fetid Serum flowing from the Ears of some Adults, and the Blood evacuated from them when the Head is wounded,

proceeded

proceeded from the Brain : But, 'tis certain, there are no apparent Ways, or Passages, by means of which any thing can be convey'd from the Brain to these Parts * ; for in the *Os Petrosum* there is only one Hole, which is imperforated at that Extremity which lies next the *Ear*, and which is closely shut up by the auditory Nerves ; so that we cannot reasonably suppose, that any thing should be convey'd from the Brain to the *Ear* in this manner. But, supposing the Blood and Serum lodg'd in the Basis of the Cranium capable of corroding the Bottom of this Hole, and making a Passage to themselves thro' it, yet still they could only enter the *Vestibulum* and *Cochlea* ; and before they can pass into the *Tympanum*, they must corrode the Membrane which shuts up the *Fenestra Rotunda*, the Basis of the *Stapes*, and the Membrane with which it is cover'd ; and even after they should happen to be lodg'd in the *Tympanum*, they would, without Doubt, be convey'd to the Mouth by means of the Eustachian Tube, rather than corrode the *Membrana Tympani*, and discharge themselves by the *Meatus Auditorius* †. Upon my Hypothesis, I am involv'd in none of these Difficulties, and can easily account for these seemingly surprising Phenomena : For if a great deal of Serum is discharg'd from the Ears of Children, this is to be ascribed, not only to the State and Condition of their Blood, which is aqueous and serous, but also to the Relaxation of the Glands of the *Ear*, which is also observ'd to happen to the Glands of the adjacent Parts : And if the Suppression of this Evacuation should throw Children into convulsive or epileptic Fits, this Phenomenon is also easily accounted for, since the suppressed Juices may reasonably be suppos'd to become more acrid by their Continuance, and consequently occasion Irritations in the Membrane of the *Meatus*, and even enter the Mass of Blood again, and thus discharge themselves upon the Brain. As for those whose Ears discharge a clear and fetid Serum, 'tis to be observ'd, that tho' the Glands of the *Ear*, when in their natural State, are only destin'd for the Secretion of the Wax, for the Purposes I have already mention'd ; yet, in this Case, they may also serve as a proper and commodious Drain for the Evacuation of the peccant Humours ; which is evidently observ'd to be the Case in all the conglomerate Glands. And as for the Blood discharg'd from the Ears in Cases where the Head is wounded, 'tis sufficiently known, that it proceeds from a Rupture of the Vessels appointed for moistening the *Meatus*. 'Tis no hard Matter to conceive, how, by the violent Concussion of the Cranium, this Rupture should be produc'd in these Parts, as well as in the Brain : And, lastly, that the suppurated Matter, discharg'd from the Ears, has no manner of Communication with the Brain, is sufficiently plain from the following Observations.

A certain Man of sixty-five Years of Age, pretty corpulent, and of a sanguine Constitution, had labour'd under a plentiful Suppuration of both his Ears, but especially of the Right, for the Space of twenty-five Years, tho' in every other respect the State of his Health was very good. The Matter discharg'd was fetid, and considerably thick. And when this Evacuation was suppress'd, he died of an Apoplexy within the Space of twenty-four Hours ; upon which I laid open his Cranium, and, viewing the Parts of the Brain near the *Os Petrosum*, I found them perfectly sound, and the Bone itself in its natural State ; neither did I find any Collections of Serum in any Part whatever, except in the Ventracles and Meanders of the Brain itself. But these Collections of Serum differ'd very much from that Matter, which, during his Life, had been discharg'd from his Ears. I have also dissected the Ears of several Children, in whom I have found the *Tympanum* filled with Pus ; whilst, at the same time, I could never find any Indisposition or Disorder, either in the Brain itself, or the *Os Petrosum*.

In curing Inflammations of the *Meatus Auditorius*, we must be guided by the same Indications which are followed in all Inflammations of the external Parts. The Fluxion of Humours to the Parts affected is to be stopp'd by Venesections, and by anodyne Medicines, to which may be added Oil of Water-lilies, and the Juices of Lettice and Night-shade. But if the Inflammation continue, and tend to a Suppuration, we are then to apply maturing Medicines, such as Cataplasms of the Crum of Bread, or Cataplasms made of boil'd

Onions, Lily-roots, fresh Butter, and the Oil of Chamomile and Melilot.

When the Abscess is open'd, we must use detergent Injections, made of Barley-water and Honey of Roses ; and, if more powerful Medicines are necessary, we must have recourse to Decoctions of Agrimony, Birthwort, and other vulnerary Plants, in White-wine, to which we may add a proper Quantity of Honey of Roses, or of Squills. If the Ulcer is sordid and putrid, we are to use Tincture of Aloes, extract'd with Spirit of Wine ; if 'tis deep, the *Balsamum Viride Metense* is proper.

When the Ulcer is deterg'd, it must be dry'd and cauteriz'd. Decoctions of Plantain, Birthwort, and Galls, are excellent for answering these Intentions ; the Wine of Pomgranates, described by *J. de Vigo*, is also excellently calculated for this Purpose. As these Medicines have nothing peculiar in them, and are used in Inflammations and Ulcers of all kinds, 'tis not necessary I should here account for their Effects, or explain the Manner in which they operate : I shall only add, that, during the Time we use them, we ought not to neglect general Remedies, which are highly proper in all the various Stages of these Disorders. In order to kill the Worms, some People drop bitter Liquors into the *Ear*, such as the Juices of Wormwood, and the lesser Centaury, Decoction of the bitter Gourd, or a few Drops of the Oil of bitter Almonds, or of Box. In the *Ephemerides Eruditorum*, for the Year 1677, Spirit of Wine is affirm'd to be a most efficacious Remedy against Worms ingender'd in the *Ear* ; but of all the several Medicines recommended for this Purpose, those which are somewhat thick, and of an oily Nature, are the most efficacious, because they block up the Bronchia of the Insects, and suffocate them in a Moment.

As for the Discharges of serous Matter, which I have call'd Suppurations, since, for the most part, they are not accompanied with Pain, and cannot be suppress'd without bringing on a Train of very dangerous Symptoms, they are not, for this Reason, to be rashly and imprudently stopp'd : But, if at any time they should prove painful, we are to have recourse to the Medicines I recommended when I was treating of the Pain of these Parts.

A third Disorder, to which the *Meatus Auditorius* is subject, is an Obstruction, which is generally the Consequence of Inflammations, Abscesses and Ulcers, which usually swell these Parts ; but this Disorder may be also produc'd by other Causes. First, extraneous Bodies may slip into the *Meatus*, such as Pease, Shot, or the Stones of some Fruits ; and, when these Bodies happen to be lodg'd pretty deep, they are not easily extracted, because they are lodg'd in the bony Part of the *Meatus*, which is very oblique, and declining towards the *Tympanum*. Besides, they are in some measure detain'd by the Congelion of Wax and Sordes in that Part. Pease, and all other Seeds, are extracted with still greater Difficulty, since they not only distend themselves in the *Meatus*, but may also happen to germinate in it, as we may see in Instances given by *Fabricius Hildanus*, and *Schenkius*. The most common and ordinary Cause of the Obstruction of the *Meatus* is a Congelion and Inspissation of the Wax. In those who neglect to cleanse their Ears, this Wax is sometimes so largely accumulated, and in Process of Time so inspissated, as entirely to block up the *Meatus*. In Men of cold and phlegmatic Constitutions, whose Juices are tough and viscid, this Wax may sometimes happen to be naturally very thick. The Cold also of the external Air may contribute not a little to the Production of the same Effect. It is also probable, that this Wax may, on some Occasions, assume the Consistence and Hardness of a Stone ; in which Case it produces an incurable Deafness. The Truth of this seems to be sufficiently prov'd by the near Resemblance and Analogy between this Wax and the Bile, which frequently petrifies in the Gall-bladder : And this is farther confirm'd by the forty-fifth Observation of the first Volume of the Journals of *Bartholine*, who tells us, that, after his Wife had been long afflicted with a Pain about one of her Ears, she discharg'd small Stones from the *Meatus Auditorius*, along with the Wax, after which the Pain ceas'd. However, 'tis certain that this Wax is often found inspissated like Plaster, and in so large a Quantity, as entirely to block up both the bony and cartilaginous Parts of the *Meatus* ; Instances of which I myself have seen in more than

* *Jobus a Mekeren*, a celebrated Surgeon in *Amsterdam*, in a Letter to *Barbet*, endeavours to shew the Manner in which Blood is convey'd into the Ears, in Cases where the Head is wounded, in these Words :

“ As soon, says he, as I had observ'd a considerable Depression in the superior Part of the Cranium, I found a large Mass of conglutated Blood, a Part of which had been discharg'd thro' the Ears, and another Part of it had closed up the *Meatus Auditorius* ; upon which I was very desirous of discovering by what Ways this Blood had descended into the *Meatus Auditorius*. Whilst I was employ'd in this Research, I happily found the Reason why, in this Place, the Pericranium covers the temporal Muscles, but not the Bone lying under them. Upon this, I perceived the Truth of what *Tulpius* asserts, in his Answer to that Question, *Whence comes that Blood which is often discharg'd by the Ears in Wounds of the Head* ? For I myself have found, as *Tulpius* asserted to me, that this Blood descended from the superior Part of the Head, between the Cranium and Pericranium, and so enter'd the Space between the *Os Parietale*, and the *Os Petrosum* ; and that from thence it was percolated, as it were, thro' a Sierce, into the *Meatus Auditorius*. In this Dissection I found the *Os Petrosum* remov'd at a great Distance from the *Os Parietale* ; so that in the Place where they had receded from each other, the Traces of their Motion might be observ'd beginning at the *Os Petrosum*, and ending in the *Os Parietale* ; where a certain Symphysis, indented in the *Os Jugale*, and internally callous, is observ'd to prevent the Attrition of the Parts, as in all other Articulations.”

† It is observable, that many People have got a Trick of letting the Fume of Tobacco, taken in at the Mouth, pass out of the Ears : Hence it is certain, that, in some Subjects at least, Things may pass from the internal to the external *Ear*, without a Rupture of the *Membrana Tympani*.

ten or twelve Subjects, during the Time I apply'd myself to the Dissection of the *Ear*. I have also consulted with several skilful Surgeons upon this Affair, who communicated to me more than thirty Observations, proving that this Species of Deafness is at once the most common, and the most easily cur'd. And indeed that celebrated Surgeon of *Mons*, who acquired such a Reputation for his Dexterity at curing Deafness, undertook the Cure of no Species of Deafness but this; and, that he might the better discover the immediate Cause of the Disorder, he turn'd the Patient's *Ear* to the Rays of the Sun, and, when he perceiv'd any Obstruction in the *Meatus*, he made use of a certain Instrument, proper for cleansing it; and by these simple Measures cur'd vast Numbers of deaf People.

Certain Membranes are also sometimes form'd within the *Meatus*, which shut it up entirely, and produce a particular Species of Deafness. I have already said, that upon inquiring into the Causes of a Deafness with which a certain Person had for a long time been afflicted, I found in his Right *Ear*, of which he was deaf, a pretty thick and lax Membrane, before which there was a very considerable Collection of Sordes, of the Consistence of Plaster, which was undoubtedly the Cause of his Deafness; for the *Membrana Tympani*, and all the other Parts of the *Ear*, were in their natural State and Condition.

The fungous and fleshy Excrescences, which sometimes succeed Ulcers of the *Meatus*, or those Excoriations accidentally made in cleansing the *Ear* with too sharp an Instrument, may also rise to such a Height, as entirely to close it up.

There is another Species of Obstruction incident to the *Meatus*, which happens when the adjacent Glands are tumefy'd, and drench'd with a superfluous Serum, just as it happens in the spongy Membranes of the Nose, which are sometimes so tumefy'd and distended, as to intercept all Passage of the external Air. This Species of Obstruction is always accompany'd with a Relaxation of the *Membrana Tympani*; and for that very Reason produces a Deafness, or at least a Difficulty of Hearing, which is remov'd by the Evacuation of this superfluous Serum, either by the *Ear* itself, or by some other Conveyance, in the same manner as in other Catarrhs.

In the first Species of Obstruction, the Whole of the Indication consists in extracting the extraneous Bodies. But, to succeed in this Attempt, we must carefully consider, whether these extraneous Substances are capable of becoming soft, such as Pease; or whether they are hard and solid, such as Shot, and the Stones of some Fruits: We must also diligently observe, whether they are lodg'd in the cartilaginous, or in the bony Part of the *Meatus*. In order to extract soft Bodies lodg'd in the cartilaginous Part of the *Meatus*, we must endeavour to break them; or the Ear-probe, or Spoon, is to be thrust beyond them, which may sometimes be easily done, in a pliant flexible Part, such as the Cartilage of the *Ear* is; and thus they are to be extracted from the *Meatus*. This Method may also be us'd with regard to hard Bodies lodg'd in the same Place, which may be extracted either with the Ear-probe, or the Trepan. As for Bodies lodg'd in the bony Part of the *Meatus*, they are with great Difficulty extracted, as we have already observ'd, especially when they fill the *Meatus* entirely up; for, in this Case, we may easily perceive, that neither the Ear-probe, nor the Trepan, can be of great Service. In a Case of this Nature I therefore think, that an Incision may safely be made in the posterior and superior Part of the *Ear*, since there are no considerable Vessels to forbid it, and since, in that Part, the Du'd is only cover'd with a glandular Skin. The Obliquity of the *Meatus* is, in some measure, shunn'd by this Method, and we may use the Trepan which is apply'd for extracting Bullets. If a Fruit-stone should happen to be lodg'd in the bony Part of the *Meatus*, since by reason of its oval Figure it may be laid hold on by one of its Ends, we may in this Case make use of an Instrument describ'd by *Hildanus*, *Cent. 1. Observat. 4.* which he calls a *Tenacula*, and which, properly speaking, is no more than a double Ear-picker, or Spoon, made in form of a Pair of Tongs; but for this Purpose the Branches of the Instrument must be very slender, and made of fine Steel. I need not, on this Occasion, describe all the minute Circumstances of these Operations, nor warn the Operator to lubricate and relax the *Meatus* with Oil of sweet Almonds, since I take it for granted, that these Circumstances are already well enough known.

In the second Species of Obstruction, produc'd by the Induration of the Wax, this Substance must be broken, and cleans'd out by means of Injections of warm Water, emollient Decoctions, Hydromel, Lintseed-oil mixed with a few Drops of the Spirit of Wine, Oil of bitter Almonds, and Oil of sweet Trefoil. Some, for this Purpose, use mineral Waters; and this Intention is very successfully answer'd by the Galls of all Animals in general. Others prefer warm Water to all other Liquors whatever, and add a few Drops of Spirit of Wine to it, with a View to render it more penetrating.

The Wax is sometimes disengag'd and discharg'd within five Days, and sometimes not till after fifteen; which is an evident Reason, that we ought patiently to persist in the Use of Injections, till the desir'd Effect be produc'd.

In the third Species of Obstruction, in which there is commonly a Congestion of Wax before the preternaturally-form'd Membrane, we must first cleanse the *Meatus* by means of the above-mention'd Injections, and afterwards perforate the Membrane itself; but, in this Operation, the Surgeon ought to take particular Care not to injure the *Membrana Tympani*.

In order to form a just Idea of the Method of Cure to be observ'd in the fourth Species of Obstruction, which is produc'd by fungous and fleshy Excrescences, little more is requisite almost, than to read the first Observation of the third Century of *Fabricius Hildanus*, where he gives us a Description of a fungous and scirrhus Excrescence, which appear'd in the *Meatus* after an Abscess. Before he attempted its Extirpation, he carefully prepar'd the Patient's Body for the Operation; after which he took as much of it off by the Ligature as he possibly could; but as the Root of the Excrescence was pretty deep, and as his Instruments could not reach the Bottom of the *Meatus*, he was oblig'd to use some Caustics, which he apply'd by means of a small Lamina of Wax, for fear of wounding the *Meatus*; which Method succeeded according to his Desire. But, to illustrate still farther the Method to be us'd in the Cure of Disorders of this Nature, 'tis to be observ'd, that if the fleshy Excrescence is very large, and appears without the Entrance of the *Meatus*, we may in that Case cut it off, either with the Scissors, or the Bistoury; or as much of it as can be laid hold of, may be tied with a Thread; but I should rather choose to cut it, because by that means more of it is taken off, than by tying it. As we are afterwards oblig'd to stop the Blood, we for that Purpose use a small Piece of Vitriol, fix'd in the End of a Quill, in the manner of a marking Pencil, that a small Point of the Vitriol may only appear without the Extremity of the Quill, in order to touch only such Parts as stand in need of it, and stop the Blood by inducing an Eschar, which also carries off a small Portion of the Carnosity. In order to consume the Remains of the Carnosity, which are deep-lodged in the *Meatus*, as we must guard against wounding the Membrane by Caustics, of which the most common are Powder of Savin, burnt Alum, and red Precipitate, boiled with Wax and Turpentine, I would not make use of Lamine of Wax; but I believe we may safely apply Caustics in the Form of an Ointment put upon the End of a Tent, and introduced into the *Meatus*, having first passed in a small Leather Tube made in the Form of the Finger of a Glove, through which it would be no hard matter to push the Tent with the Caustic Ointment on its Extremity, without any Danger of hurting the Membrane of the *Meatus*. Instead of the Leather Tube, a small one may be used, either of Brass or Silver, and bended so as to answer the several Windings of the *Meatus*. After the Eschar is formed, we must drop a little of the Oil of Eggs, or of Almonds, into the *Ear*, not only to ease and lubricate the *Meatus*, but also to procure a Separation of the Eschar. These Remedies must be repeated till the Whole of the Carnosity is consumed; after which, we may make Tents, and arm them with the *Unguentum Aegyptiacum*. These Tents must be introduced and pushed beyond the Tube, that the Ointment may be applied to the Remains of the superfluous Flesh adhering to the Surface of the *Meatus*, where the Carnosity was, in order to prevent their sprouting out again, and with a View to procure a laudable Suppuration; after which we must use detergent and lenitive Medicines in order to incise and cicatrize the Ulcer, always remembering now-and-then to mix with them some Substance that has a Tendency to prevent the Regeneration of fungous Flesh. A little Vitriol dissolved in a sufficient Quantity of some vulnerary and deterfive Decoction, to give it a small Astringency, is very proper for this Purpose. This is to be injected into the *Ear*, and a little Lint soaked in the same Liquor introduced, which, when it can be easily done, proves of excellent Service, because it compresses the Ulcer, and prevents the Generation of a new Fungus.

In the fifth Species of Obstruction, which is caused by a Distension and Inflation of the Glands of the *Meatus*, we must prescribe the same general Remedies as in all Rheums. The *Ear* is, in this Case, to be fumigated with the Vapour of Carduus Benedictus, or of the Decoctions of *Florentine* Orris, Marjoram, Carduus Benedictus, Wormwood, Calamint, Baum, and Anise-seeds. A Decoction of the bitter Gourd in Oil is very much commended for this Purpose. *Barbet* uses a Decoction of Cloves in Red-wine, some Drops of which are to be convey'd into the *Meatus*, which he afterwards shuts up with a Clove. *Platerus* prescribes a particular Water for this Purpose, the Efficacy of which he highly extols. *Mendererus* proposes another Water, which has been corrected by *Zwelfer*, in his Notes on the *Pharmacopæia Augustana*; and *Hadrrianus à Mynsabt* commends a certain compound Spirit of Wine, as very proper for answering this Intention. The expressed Juice of Marjoram alone is highly esteemed, as also Hares Urine, either alone, or mixed with Spirit of Wine, or the Water of the common Ash-tree, and the *Hungary* Water. It also affords some Relief, to close up the *Ear* with Cotton impregnated with Musk. Some People think the Membrane of the *Meatus*, and
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the *Membrana Tympani*, so delicate, and endowed with so exquisite a Power of Sensation, that they will not admit of Injections of acrid and spirituous Liquors. In this Case, a few Drops of these Liquors are only to be poured upon hot Bread, which is to be held upon the *Ear*. These Liquors are also with Success held in the Patient's Mouth; for their spirituous Parts, being elevated, ascend through the Eustachian Tube to the *Ear*. For the same Reason, Masticatories are used with Success.

'Tis no hard Task to account for the Action and Operation of these Medicines; for, since they are of a subtile and penetrating Quality, they must of course open the Pores of the Glands, and promote the Discharge of the superfluous Serum. To all these I shall subjoin an Observation communicated to me by that skilful Surgeon Mr. *Pufferat*.

A young Gentleman about eleven or twelve Years of Age, about the Beginnings of the Spring and Autumn, used sometimes to have the Glands of the *Meatus Auditorius* so distended and swelled, that they touched each other, and it was impossible to introduce any thing between them. At first Oil of Sweet Almonds was dropped into his *Ear*, in order to allay the Pain; then a Decoction of Barley and Agrimony was used, which is of a detergent and drying Quality. By this means the *Ear*, after having discharged an apparently purulent Humidity for three or four Days, at last returned to its natural State.

I now come to consider the Disorders incident to the *Membrana Tympani*, which are Relaxation, too violent Tension, Induration, and Rupture. The Relaxation is caused by a superfluous Humour moistening this Membrane. This Symptom generally accompanies that Obstruction of the *Meatus*, which is produced by a Distension of the Glands, of which I have spoken already; and it contributes very much to a Dulness of Hearing in those Persons who are subject to catarrhus Defluxions. 'Tis also for this very Reason, that Southerly Winds, Fogs, and rainy Weather, impair the Sense of Hearing, as we find from daily Experience.

An extraordinary Tension of the *Membrana Tympani* produces a quite different Effect, by causing the least Noises to become insupportable. This Tension happens in violent Head-achs, and in acute Fevers, because the Tensions and Irritations of the Membranes of the Brain communicate themselves to all the neighbouring Membranes.

The Induration of the *Membrana Tympani* may proceed from its becoming too dry, which is sometimes the Case with old People. Besides, we know from numberless Observations, that the Membranes of the Body may not only become callous, but also ossify. This I myself have particularly observed in the *Dura Mater*, and in the Coats of some Arteries, which I have often found ossified. This shews us, that the *Membrana Tympani* may sometimes become hard and cartilaginous, the Consequence of which is an incurable Deafness.

Lastly, the *Membrana Tympani* may be broken either by some external Cause, such as an Ear-picker, for Instance, inadvertently pushed too far, or by some strong Effort, such as is made when one shuts his Nostril and Mouth, and afterwards lets go the retained Breath with Violence, which happened to one of my Acquaintance. This Action of the Air is observed in Sneezing, when we feel, that the Air, which suddenly ascends through the Duët, drives the *Membrana Tympani* outwards, and occasions a painful Tension. This may also happen in Quinsys, and in Difficulties of Breathing, where the Bottom of the Mouth and Nose are distended and inflated by any Defluxion of Humours, or an Inflammation; for when the Air, thrust out of the Breast, cannot find a free Exit, it enters with such Violence into the Duët which goes from the Palate to the *Ear*, that it is capable of bursting the *Membrana Tympani*. *Tulpius* gives us two very remarkable Instances of this in the thirty-fifth Observation of his first Book. It is not easy to explain how the *Membrana Tympani*, which is so strongly inserted, as it were, in a Groove, should not be able to resist the Impulses of the Air. But if we consider, that this Groove does not run quite round it, but ends at that Part which corresponds to the Entry of the *Meatus*, which penetrates into the Sinuses of the Mastoide Apophysis; and that in that Part the *Membrana Tympani* only adheres simply to the Border of the bony Part of the *Meatus*; we shall easily perceive, that it may very readily be torn in this Place, and by that means afford a Passage for the Air to the external *Ear*.

By this we see how much *Tulpius* has been mistaken, when he imagined, that the Duët which goes from the *Ear* to the Palate, not only served to renew the Air in the *Tympanum*, but also, on some Occasions, to afford a Passage for the Air returning from the Lungs in Expiration; which Opinion he endeavours to confirm by the Observation concerning the two Asthmatic Cases already mentioned, and by the Authority of *Alemean*, who, according to *Aristotle*, imagined that certain Goats breathed through their *Ears*. Besides, the *Membrana Tympani* may be corroded by the Acrimony of the Pus retained in the *Tympanum*, or in the *Meatus Auditorius*, as is plain from Numbers of Instances brought by *Fabricius Hildanus*, *Schenkius*, and several others. But, in whatever manner the *Membrana Tym-*

pani is broken, the Air is discharged from that *Ear*, when the Mouth and Nostrils are shut, with such Violence as to extinguish a Candle. In such Cases as these, the Sense of Hearing remains for some time, but is gradually impaired, till at last it is quite lost; from which we may infer, that the *Membrana Tympani* is not absolutely necessary for the Purposes of Hearing, but that its principal Use consists in transmitting its Vibrations to the Air contained in the *Tympanum*, and to the small Bones employed in hearing, and in defending the Parts against the Injuries of the external Air. When this Membrane is broken, the external Air alone is indeed able to put the small Bones, and the immediate Organ of Hearing, into a Commotion, and thus excite the Sensation of Hearing; but since it destroys all the Parts of the internal *Ear* by Cold, or any Excess of its other Qualities, it at last destroys the Sense of Hearing.

In Cases where the *Membrana Tympani* is relaxed, we are to apply the same Remedies prescribed in other catarrhus Disorders; but in Cases where 'tis too tense, besides the Remedies prescribed in Diseases produced by Tension, we are to foment the *Ear* with Milk, Oil of Sweet Almonds, or any emollient Decoction. Both the Induration and Rupture of the *Membrana Tympani* are incurable.

As for the *Tympanum* and *Labyrinth*, as these Parts are bony, and only covered with a single Membrane, I can scarce allow myself to think, that they are subject to any other Disorders than Caries of the Bones, and Inflammation of the Membranes. Caries of the Bones sometimes happens after those Abscesses which open behind the *Ear*. In Cases of this Kind, Fistulas have been observed above the *Mastoide Apophysis*, which have penetrated its Sinuses, and made the little Leaves, of which it is composed, fall off in the Form of Scales. This Caries is attended with a very nauseous Smell, and very dreadful Symptoms; for the Caries sometimes penetrates into the *Tympanum* by means of a Duët which leads to it, where, destroying all the Parts included in it, it produces Deafness; but this is rarely the Case, and I have never met with more than one or two Instances of it. As for an Inflammation of the Membranes, when I applied myself to the Dissection of the *Ear*, I often found the *Tympanum*, the *Vestibulum*, the semicircular Duëts, and *Cochlea*, stuffed with a thick Sanies, which might have come from Abscesses of the Membranes which line these Parts. I don't doubt but Deafness is very often produced by this Cause, as well as by a Congestion of any other Matter in all these Cavities; and that so much the rather, because this Matter cannot easily be discharged from the *Tympanum*, since its Cavity descends lower than the Opening of the Duët which goes from the *Ear* to the Palate; and hence it happens, that these Humours cannot fall down into the Mouth, unless the Head be placed in a certain Situation. But, in order to make their Way through the *Meatus Auditorius*, they must corrode the *Membrana Tympani*, which they cannot do, till they have acquired a very considerable Acrimony. We have also Reason to suspect, that the Spiral Lamina may be corroded by the Acrimony of the Pus, and also become relaxed or callous, as well as the *Membrana Tympani*; but I will not positively assert, that this is the Case, since I have no Instances of the Fact to justify the Assertion.

I cannot possibly recommend more efficacious Medicines for curing a Caries of the Bones of the *Ear*, than those prescribed by that skilful Surgeon Mr. *Deymier*, from whom I had this Observation. He first of all dilated the *Ear* with a prepared Sponge, which made a considerable Opening, so that the Medicines could by that means be applied immediately to the carious Bone. Then he applied Lint soaked in *Imperial Water*, in which a little Camphire had been dissolved. But as that Medicine incarn'd the lateral Parts of the Ulcer too soon, whilst the Caries as yet remained, he had recourse to the Powder of Euphorbium, which produced very happy Effects. Slight and momentaneous burning Pains were indeed excited by it; but the Application of a very small Quantity of it answered the Intention by procuring an Exfoliation, and hindering the Flesh from sprouting out afresh. He also used the Tincture of Euphorbium extracted with Spirit of Wine, adding to it some Myrrh and Aloes. The Caries being consumed, and an Exfoliation made, he used the *Imperial Water* till the Cure was completed, applying to the Part affected Lint, and the *Emplastrum de Betonica*, to which a little of the Essence of Juniper, Cloves, and the Oil of Marigold, had been added.

In Inflammations of the *Tympanum* and *Labyrinth*, Topical Applications are scarcely of any Service; and we must only use internal and general Remedies, which are also attended with small Success, because the Abscesses open within the *Tympanum*, and the Cavities of the *Labyrinth*; whence, as I have already observed, the peccant Matter cannot be discharged; so that Humours accumulated in these Cavities produce an incurable Deafness.

The Disorders incident to the *Auditory Nerve* are Obstruction and Compression. When the whole Brain is overflowed and drenched with a sordid Serum, as in *Apoplexy* or *Palsy*, 'tis plain this Nerve must be obstructed as well as the other Nerves.

Besides,

Besides, the sole Obstruction of this Nerve, even when no other Fault is found in the other Organs of Hearing, may also produce Deafness, for the same Reason that an Obstruction of the Optic Nerve occasions a *Gutta Serena*. The Compression of the *Auditory Nerve* produces the same Effect; and this Compression may be owing to several Causes; the Blood, for Instance, or other Humours extravasated; as also to Tumors, of which we have an Instance recorded in the fifty-third Observation of the second Section of *Bonetus's Anatomia practica*, who informs us, that *Drelincourt* found in the Brain of a Man, who died of an Apoplexy, a *Steatoma* between the Cerebrum and Cerebellum, which at first produced Blindness, then Deafness, and, last of all, a Privation of all the Animal Functions.

'Tis easy to discover this Obstruction or Compression in the *Optic Nerve*, because all the Parts are transparent and diaphanous; and, when we discover no Defect in them, we have Reason to suspect an Obstruction of the *Optic Nerve*. But the internal Parts of the *Ear* are not subjected to our Sight; for which Reason 'tis very difficult to discern whether the Fault is in the Organ of Hearing, or in the *Nerve*. But if a Drowsiness or Palsy has preceded the Deafness, or if any of the rest of the Senses is also destroyed, we have Reason to believe, that the Brain, and the *Auditory Nerve*, are either obstructed, or too strongly compressed. In this Case we are to use the same Medicines prescribed in a Palsy, as repeated Purges, Vomits, Cephalic Waters and Spirits, Sudorifics, Baths, Masticatories, and Sternutatories. A Compression of the *Auditory Nerve*, produced by a Tumor, is absolutely incurable.

The Disorders already explain'd either impair, or quite destroy, the Sense of Hearing; but what we call a *Tinnitus*, is a Depravation of it; and this Depravation consists in this, that the *Ear* perceives Sounds which have no Existence, or, at least, which are not produced by the Motion of the external Air; so that, being already filled with a certain Species of Sound, it cannot admit the Impressions of external Sounds, unless they are pretty strong and violent.

The Antients imagined, that this Symptom was produced by the Motion and Agitation of the Air, which is lodged within the *Ear*: They also thought, that this Agitation was occasioned by Flatulencies and Vapours being conveyed to the *Ear*; and that those Vapours arose either from the whole Body, as in Fevers; or from some particular Part, such as the Stomach or Brain; or from any pituitous Humours lodged in the Cavities of the *Ear*. They also attempted to account for all the several Differences of *Tinnitus* from the Quality, Consistence, and Motion of the Humours or Vapours collected within the Organs of Hearing. I shall not here make it my Business to point out the Weakness and Absurdity of this Theory, since these will sufficiently appear from the Account of a *Tinnitus*, which I am now to give. I shall only observe, that there is little Probability, that all these different Noises, which People believe they hear, should be caused by something which in reality strikes the *Ear*, in order to produce the Sounds of Bells; for Instance, the Murmurs of Waters, and several other Noises, which People subject to a *Tinnitus* every Day seem to hear; and that 'tis probable, that most Part of these are false Noises, which may be produced in the *Ear* without either Wind or any other Matter striking the Membranes externally, as I shall now shew.

As I apprehend then, a *Tinnitus* consists in the Perception of a Sound which is not real, or, at least, of a Sound which is within the *Ear*. In order to conceive how People may hear Sounds which do not really exist, we must observe, that as the Action of Hearing consists in the Agitation of the immediate Organ appointed for that Purpose, it is sufficient, that, in order to form a Sound, such Agitation be produced, whether it be produced by the Air or not; for just as we conceive that Vision, which depends on the Manner in which the Retina is agitated by the visual Rays, may be performed without these Rays, when some other Causes produce the same Agitation, as happens when the Eyes see Sparkles in the Dark, upon receiving any Blow; so we may also affirm, that when any other Cause, besides the agitated Air, produces in the Organ of Hearing, I mean within the Substance of the Membranes, this Agitation modified in the same manner as it ordinarily is by the Air, which conveys Sounds, the *Ear* appears to be struck with a Sound, which is not more real, than the Sparkles in the other Case are real Light. But what renders this Comparison sufficiently just is, that, as these false Appearances of Light, which are not caused by external Objects, have nothing distinct and determinate, but only a simple Light, the circumstance View of an Object demanding a Concurrence of more Circumstances; so it happens, for the most part, that those Noises of the *Ear*, of which we are now speaking, are confused; for the Hummings and *Tinnitus*, which in this Symptom are the most distinct Noises, are still very simple.

In order to determine precisely what may be the Cause of this Agitation in the immediate Organ of Hearing, we need only examine the Disorders in which a *Tinnitus* occurs, and these are Inflammations and Abscesses of the *Tympanum* and *Laby-*

rinth, and the Disorders of the *Meatus Auditorius*. Inflammations of the *Tympanum* and *Labyrinth* necessarily produce Agitations in the *Spiral Lamina*, and in the *semicircular Ducts*; either by the Tension of the Membranes, or by the Vapours which transpire, and mix themselves with the Air in the *Tympanum*; acrid Substances, Worms, extraneous Bodies, a Constriction of the *Meatus* succeeding a Distension of the Glands, and in general every thing which can cause, in the *Meatus Auditorius*, Pain, and the other Symptoms I have mentioned, agitate the Membrane of the *Meatus*, and the *Membrana Tympani*; and this Agitation is able to communicate itself to the immediate Organ of Hearing.

The second Species of *Tinnitus* is, when one perceives a true Noise, but formed within the *Ear* itself. Thus we hear a humming Noise when we stop our *Ears*. This Noise is produced by the Friction of the Hand, or by the Compression which influences the Skin and Cartilages, whose Parts, being put into a Commotion, may produce an Agitation there. The Elasticity of the Air, and the Vapours which continually exhale from Bodies, may also contribute to this Effect, when those flowing from the Hand, joined to those proceeding from the Membrane of the *Meatus*, being pent up, strike the Sides of this Cavity, and produce Agitations, which, though very small, yet form a real Sound, which becomes sensible by reason of the Proximity and Continuity of the Parts, as also by means of the Reflexions which are made in this Cavity when blocked up.

Commotions of the Cranium, and Disorders which contract the *Meatus*, may also produce these Species of *Tinnitus*, if we suppose, that all the Shocks the Cranium receives, are communicated to the immediate Organ of Hearing, by means of the Continuity alone of the Temporal Bone; but this ought to be restrained to the very Time in which the Agitation happens; for those *Tinnitus*es which afflict the Patient afterwards, must be accounted for from a Disorder of the Spirits, as we shall afterwards see. In like manner, the Distension of the internal Membrane of the *Meatus*, by rendering it narrower, may produce a like Effect with that of the Hand which shuts up the *Ear*. Besides, it frequently happens, that People feel a Pulsation within the *Ear*, which makes them imagine, that they hear something striking; and this Pulsation is sometimes so strong, that other People may also hear it. A Gentlewoman of *Picardy* afforded me an Instance of this, who, upon the least violent Exercise, feels so troublesome a Pulsation in her *Ear*, that she imagines a Pendulum to be tied to her Head; and this Pulsation is also heard by those who come near her. Now this Pulsation is undoubtedly produced by a dilated Artery, because it always keeps perfect Time with the Pulsation of the Heart; and this Perception of an interior Sound to me seems perfectly analogous to that Symptom observed in imperfect Cataracts. Persons who labour under this Disorder, see Motes and Flies dancing before the Objects they look at; and these Motes and Flies are no other than the thick and viscid Particles beginning to be accumulated in the aqueous Humour, which by their Motion agitate the Retina, and necessarily produce a certain Sensation. But it may be objected, If these are true Sounds, and if the Organ of Hearing distinguishes them as they really are in themselves, why should they be ranked among the Species of *Tinnitus*? I answer, That, in reality, these Sounds are perceived such as they are; but the Sense of Hearing is depraved, so far as it ascribes these Noises to some external Object; just as those in whom a Cataract begins to form itself, attribute the Motes and Flies to external Objects, and stretch out their Hands to catch them.

Besides, I am of Opinion, that there may be a Perception of a false Noise, without any Fault in the Organs of Hearing; which happens when the Parts of the Brain where the Filaments of the Auditory Nerve terminate, are agitated in the same manner they use to be by Objects. What induces me to believe this, is my observing, that many Disorders of the Brain, such as Deliriums, Phrensies, and Vertigos, are accompanied with a *Tinnitus*; and that those who are subject to epileptic and fainting Fits, hear humming Noises, which are, as it were, the unwelcome Harbingers of the Paroxysm. As in all these Disorders there is an irregular and tumultuous Motion of the Spirits, it is much more easy to conceive, that the agitated Spirits may put the Extremities of the Auditory Nerve into Commotions, and by that means excite a Sensation of Noise, than to suppose any Fault or Defect in the Organs of Hearing. This Method of accounting for a *Tinnitus* to me appears sufficiently satisfactory and just; and I think I may say, that as the Motion of the Spirits is very irregular and tumultuous in these Disorders, so the Sounds and *Tinnitus* we hear, when labouring under them, must be very different from the Sounds we hear on other Occasions. I shall undoubtedly be told, That this is an Error of the Imagination, and not an Affection of the *Ear*. I agree to it; for 'tis the very thing for which I contend. As 'tis thought we can never hear any thing without the *Ear* being struck, we ascribe all Sounds to that Organ. But 'tis a matter of Indifference, whether the Fibres of the Nerve be agitated

tated in the Brain, or in the Ear, since in both Cases the same Sensation will be produced. This happens in a manner analogous to that in which a *Vertigo* is produced; in which 'tis obvious, that the circular Motion of the Spirits produces the same Effect as the Objects seen would do, if they were actually in a gyratory Motion; or as it happens to phrenetic Patients, who imagine, that they see Motes, which have no real Existence; and this Symptom is only occasioned by the Agitation of the *Optic Nerve* within the Brain. Thus as we ascribe the Symptoms of Cataracts and Phrenies to a depraved Imagination, we must also ascribe to the same Origin these *Tinnituses*, which succeed the Disorders of the Ear, which very often by no means depend on the Indispositions of the Organs of Hearing.

On this Hypothesis we may establish two Species of *Tinnituses*, one of which is produced by the Disorders of the Brain, and the other by those of the Ear. Those produced by the Disorders of the Ear, as has been already said, are either true or false; and, of these last, some are called *Tinnituses*, some *humming Noises*, some *Tinglings*, and others *Murmurs*. And in general we may affirm, that dull and heavy Noises are produced by a Languid Agitation, and sharp tingling Noises by a brisk and lively Agitation, which is sufficiently confirmed by the remote Causes of these Symptoms. Rheums, for Instance, and Suppurations, where the Membranes are relaxed, generally produce a heavy dull Noise; whereas Inflammations, and Pains of the Ear, where the Parts are generally tense and dry, produce *Tinnituses*, and acute Sounds. We have Reason to believe, that all these Noises make the same Impression on the *Spiral Lamina*, and *femicircular Ducts*, that acute and grave Sounds would do.

The Cure of a *Tinnitus*, in general, is to be managed according to the Diseases of the Brain, or Ear, which have produced it. I add, that in *Tinnituses*, or sharp Noises, we must use almost the same Remedies as in acute Pains, and Tensions of the *Membrana Tympani*; and that, in humming heavy Noises, we may use those prescribed against that Pain which is produced by Cold, and against a catarrhus Obstruction; after which it will be no great Difficulty to chuse the most proper, if we only have a due Regard to all the several Circumstances, from which just Indications may be taken. *Du Verney*.

DISORDERS of the EARS. From CELSUS.

Next to the Eyes, Nature has assign'd the most useful Office of Life to the Ears: But Disorders in these latter are the more dangerous; for the Diseases of the Eyes are confin'd to the Parts affected, but Inflammations and Pains of the Ears precipitate the Patient sometimes into Madness, and Death itself. Wherefore we ought to be more careful to apply a Remedy in the Beginning, in order to prevent a greater Danger.

As soon, therefore, as a Person feels a Pain in his Ear, let him betake himself to Abstinence and Rest. On the next Day, if the Disorder be increased, his Head is to be shaved, and anointed with *Unguentum Irimum* hot, and then be cover'd. But a great Pain, with a Fever and Want of Sleep, requires also Phlebotomy. If this be, for some Reasons, judged improper, the Belly is to be evacuated. Hot Cataplasms of Fenugreek, Linseed, or some other mealy Substance boiled in Mulsim, now-and-then changed, have a good Effect. Sponges also wrung out of hot Water, and apply'd at Intervals, are of Service. The Pain being mitigated, a Cerate made of *Unguentum Irimum*, or *Cyprium*, is to be put round the Ear; sometimes what is made of Oil of Roses proves effectual. If the Vehemence of the Inflammation wholly deprives the Patient of Sleep, half the Quantity of bruised Poppy-heads is to be added to the Cataplasim, and these are to be boil'd together in *Passum*, or *Mulsim*.

There ought also to be dropp'd into the Ear some Medicine, which is always to be warm'd, and is most conveniently insill'd by a *Strigil*: When the Ear is sufficiently full, some fine Wool is to be put over it, to keep in the Liquor. So much is to be done in general.

Particular Medicines are, Rose-water, the Juice of the Roots of Reeds, Oil in which Earth-worms have been boiled, Juice of bitter Almonds, or of Peach-kernels. Compound Remedies for mitigating the Pain and Inflammation, commonly used, are, Castor and Opium bruised together, in equal Quantities, and then mix'd with *Passum*; or equal Quantities of Opium, Saffron, and Myrrh, thus bruised together, and moisten'd at Intervals with Insillations, sometimes of Oil of Roses, sometimes of *Passum*, or the bitter Part of the *Egyptian Bean*, bruised and mix'd with Oil of Roses; to which some add a little Myrrh, or Opium, or Frankincense, with Woman's Milk, or the Juice of bitter Almonds, with Oil of Roses.

Of Pus, and the ill Smell of the EARS.

If the Ears have Pus in them, it will be proper to insill *Lycium* alone, or *Unguentum Irimum*, or the Juice of Leeks with Honey, or the Juice of Centaury with *Passum*, or the Juice of a Pomgranate warm'd in its Shell, with the Addition of a little Myrrh. The following also is a good Medicine:

Take of that sort of Myrrh call'd *Stacte*, and Saffron, each one Dram two Grains and a half; bitter Almonds, twenty-five; Honey, half a Quarter of a Pint: Pound them together, and, when you use them, let them be warm'd in the Shell of a Pomgranate.

Those Medicines also which are good for an ulcerated Mouth, are effectual for Ulcers in the Ears; but if they are old, and abound with Sanies, or corrupt Matter, the following Remedy, invented by *Erasistratus*, may very fitly be used: It consists of

Pepper, Saffron, each one Dram two Grains and a half; Myrrh, Misy boiled (*costum*), each two Drams five Grains; burnt Copper, two Drams five Grains: Bruise them in Wine, and, when they are dry, add thereto a Pint and a half of *Passum*, and boil them all together. It is to be used with an Addition of Wine and Honey.

Menophilus's Remedy is also very effectual in this Case: It consists of

Long Pepper, one Dram two Grains and a half; Castor, two Drams five Grains; Myrrh, Saffron, Opium, *Syrian Nard*, Frankincense, Malicorium, the Inside of the *Egyptian Bean*, bitter Almonds, the best Honey, each four Drams ten Grains. While you are bruising them, add thereto some of the strongest Vinegar, till the Whole becomes of the Consistence of *Passum*.

If there be much Pus, with an ill Smell,

Take of Verdegrise, Frankincense, each two Drams five Grains; of Honey, one Sixth of a Pint; of Vinegar, one Third of a Pint: Boil them all together, and use them with an Addition of sweet Wine. The Juice of Henbane also is, of itself, very effectual in this Case.

A common and approved Remedy for all Disorders of the Ears, is the following, which was compos'd by *Aesclepiades*:

Take of Cinnamon, Cassia, each one Dram two Grains and a half; the Flowers of the round Juncus, Castor, white and long Pepper, Amomum, Myrobalans, each two Scruples; Male Frankincense, *Syrian Nard*, fat Myrrh, Saffron, Spuma Nitri, each two Drams five Grains: Bruise them first separately, then mix them, and bruise them over again in Vinegar, and so put it by for Use. When you have Occasion to use them, dilute them with Vinegar.

If the Ear run with Sanies, and there be a Tumor, it will not be improper to syringe the Ear with mix'd Wine, and afterwards to insill some austere Wine mix'd with Oil of Roses, to which a little Spodium may be added; or insill Lycium with Milk, or the Juice of the *Herba Sanguinalis* with Rose-water, or the Juice of a Pomgranate with a little Myrrh.

Of a SORDID ULCER of the EARS.

If the Ulcers be sordid or foul, it is best to wash them well with Mulsim, and then use some or other of the Remedies before prescribed, mix'd with Honey. If Pus run the more, the Head is to be shaved, and wash'd with Plenty of hot Water, which is also to be gargled: The Patient must walk till he be tired, and be sparing in his Diet. If a bloody Matter issue from the Ulcer, Lycium with Milk is to be infused into the Ear; or Water boiled with Roses, and mix'd with the Juice of the *Herba Sanguinalis*, or *Scacia*.

If Fleth be grown over the Ulcers, and the same be of an ill Smell, and Blood issues from it, it must be well wash'd with warm Water; after which a Decoction of Frankincense, Verdegrise, Vinegar, and Honey, or a Decoction of Verdegrise and Honey, is to be infused into the Ear; or Squama *Aëris*, beaten up with Sandarach, are to be insill'd into the same through a Pipe.

Of WORMS in the EARS.

Worms bred in the Ears, if they lie near enough, are to be drawn out with an Ear-probe; if they are too remote, you are to destroy them with Medicines, and be careful to prevent their future Breeding. White Hellebore, bruised in Vinegar, is effectual to both these Purposes. The Ear also is to be rinsed with a Decoction of Horehound in Wine, which will cause the dead Worms to slide towards the exterior Parts of the Ear, when they may very easily be taken out.

For an OBSTRUCTION in the AUDITORY PASSAGE.

If the Auditory Passage be stuffed, and a thick Sanies lies within the Cavity, some of the best Honey is to be put into the Ear: If this has but little Effect, you must add to half a Quarter

ter of a Pint of Honey, two Drams five Grains of Verdegrise, and boil them together for Use. Iris, with Honey, is effectual for the same Purpose, or two Scruples of Honey and Rose-water : Or,

Take of Galbanum, two Drams five Grains ; Myrrh, Honey, and Bull's Gall, each two Drams five Grains ; Wite enough to dilute the Myrrh.

For THICKNESS of HEARING.

If a Thickness of Hearing come upon a Person, which commonly happens after an inveterate Head-ach, the Ear is, first of all, to be examin'd ; for either a Crust, such as grows over Ulcers, or a Collection of Sordes, will appear in View. If there be a Crust, some hot Oil, or Honey and Verdegrise, or Juice of Leeks, or Mulfum with a little Nitre, must be pour'd into the Ear : When the Crust is loosen'd, the Ear is to be rinsed with warm Water, which may render the mollify'd and separated Matter more easy to be extract'd by the Ear-probe. If there be Sordes, and those of a soft Kind, they are to be extract'd with the same Probe ; if they are hard, Vinegar with a little Nitre is to be inject'd, and the mollify'd Matter is to be extract'd, and the Ear cleansed as before. If there remains a Heaviness of the Head, it is to be shaved, and rubb'd gently, but for a long time, and anointed with Oil of Iris, or of Bay, a little Vinegar being mix'd with either of these Oils. Then the Patient is to walk for a long while together ; and, after Uction, the Head is to be gently fomented with warm Water. The Food must be very low, and Aliments of a middle Nature only are to be taken, and Drink much diluted : Gargarisms are sometimes to be used. Injections also are to be made into the Ear, of Castor with Vinegar, and Oil of Bay, and the Juice of the Rinds of Radishes, or of wild Cucumbers, adding that of Rose-leaves bruised. The Juice of unripe Grapes, instill'd with Oil of Roses, is good also against Deafness.

Of a NOISE in the EARS.

There is another Kind of Disorder, when the Ears sound within themselves ; whence also it comes to pass, that they are disabled from receiving external Sounds. The Disorder is slightest, when it proceeds from a Cold ; worse, when it is caused by a Disease, or an inveterate Head-ach ; but worst of all, when it takes its Rise from the Approach of some great Disease, and especially the Epilepsy.

If the Distemper proceeds from a Cold, the Ear must be cleansed ; and the Patient must hold his Breath, till some Humour froth out of his Ears. If a Disease, or Head-ach, be the Cause, the same Directions, as to Exercise, Friction, Persuasion, and Gargarization, are to be observed as in the preceding Disorders ; and the Patient must keep to an extenuating Diet. The Juice of Radish, with Oil of Roses, or with the Juice of wild Cucumber-roots, or Castor in Vinegar and Oil of Bay, are to be inject'd into the Ear. White Hellebore, bruised in Vinegar, and afterwards infused in boil'd Honey, and made into a Collyrium, is to be put into the Ears. If the Disorder be owing to none of these Causes, but terrifies the Patient with an Expectation of something worse, Castor with Vinegar, or with Oil of Iris or Bay, is to be put into the Ear ; or Castor, mix'd with Oil of Bay, and Juice of bitter Almonds ; or Myrrh and Nitre, with Vinegar and Oil of Roses. But in this Case also there is more to be expected from a Regimen of Diet, in which the same Advice is to be follow'd, only with greater Strictness, as was given before ; with this Addition, that as long as the Ringing in the Ears continues, the Patient must wholly abstain from Wine.

If the Noise be attended with an Inflammation, the Ear must be abundantly mollify'd with Oil of Bays, or Oil of bitter Almonds, with which some mix Castor, or Myrrh.

How to extrael Things fallen into the EARS.

Things sometimes happen to fall into the Ear, such as little Pebbles, or Animals. If a Flea be got into it, a little Wool is to be stuffed into the Cavity, into which the Animal may get, and so be taken out. If the Flea does not follow, or it be another Animal, take a Probe wrapt in Wool, and, dipping it in some very glutinous Resin, particularly of Turpentine, introduce it into the Ear, and turn it about ; by which means you will certainly take hold of the Creature, and so pull it out. If there be any thing dead, it must be extract'd with the Ear-probe, or a blunt Hook, a little bent. If these fail, it may be drawn out with Resin, in the same manner as the other. Sternutatories also are a convenient means to force it out, or an *Ear-clyster* (*Oriculario Clystere*), the Water being forcibly impell'd into the Ear.

A Board also is sometimes placed in such a manner, as to be supported at each Extremity, and the Patient is bound upon this Board, with the affected Ear towards it, so as the Ear does not reach beyond the Board ; then that Extremity of the Board, next the Patient's Feet, is to be struck with a Hammer, and

what was in the Ear falls out by the Concussion. *Celsus*, Lib. 6. Cap. 7.

DISORDERS of the External EAR.

Sometimes there happens a Fracture of the Cartilage of the Ear, in which Case, before Pus is found, a conglutinating Medicine is to be apply'd ; for it often prevents a Suppuration, and confirms the Ear. Now we ought not to be ignorant, with regard to the present Subject as well as the Nose, that the Cartilage itself is not conglutinated, but the Flesh about it increases, and the Place is consolidated ; therefore if the Skin be broken, with the Cartilage, it is sow'd up on both Sides ; but I now speak of a Fracture where the Skin remains entire. In this Case, if Pus be already generated, the Skin must be open'd in another Part, and the Cartilage against it be cut out, making a Wound in Form of a Crescent (*Lunata Plaga*) ; after which some gentle Styptic must be apply'd to stop the Blood, such as Lycium dipt in Water. This done, let a Linen Cloth with a Plaster be laid on the Place, avoiding all fat Things ; and behind the Ear let fine Wool be apply'd, sufficient to fill the Vacuity between that and the Head. After this, the Wound is to be gently bound up, and on the third Day fomented with a Vapour-bath. Abstinence is as necessary, in the Beginning, in this as well as other Cases, till the Inflammation ceases. *Celsus*, Lib. 8. Cap. 6.

For a CONTUSION of the EARS.

Hippocrates advises to let it alone ; but, since we are often compell'd by the Patients themselves to do something,

Take of Myrrh, Aloes, Frankincense, Acacia, of each an equal Quantity ; and, mixing them with Vinegar, or the White of an Egg, anoint the Part. Or,

Take the Inside of a hot Loaf, and bruise it in a Mortar with Honey, and so apply it. Or,

Take of Bitumen, Frankincense, Aloes, the Flesh of House-snails, *African* Bulbi, of each an equal Quantity ; bruise them in Vinegar, and so use them.

If an Inflammation arise, apply a Cataplasim of Sesamum, or Alica, boil'd in Vinegar. Let the Cataplasms be but thin, and not bound on, or but very slightly ; and put Wool, moisten'd with Oil, into the Hollow of the Ear. *P. Æginet*, Lib. 3. Cap. 23.

WOUNDS of the External EAR.

Wounds of the external Ear are either to be united and consolidated by means of agglutinating Plaisters ; or, in Cases where the Cartilage is quite cut asunder, by the Assistance of proper Suture, taking care at the same time to dress the Part affected with Lint, soak'd in some vulnerary Balsam, and to secure the Dressing by proper Bolsters and Bandage. In Wounds of the Ear, happening near the *Meatus Auditorius*, we are to take particular Care, that no Blood, or other Matter, be allow'd to enter it, since, by that means, the Membrane of the *Tympanum* could not fail to be injured. In order, then, to prevent this Inconvenience, we ought always, on Occasions of this Nature, carefully to guard the internal Ear by means of Lint, or Cotton, put into it. *Heister*, *Institut. Chirurg.*

Of an IMPERFORATION of the AUDITORY PASSAGE.

This Defect is from the Birth, the Passage of Hearing being stopp'd by a Membrane, which sometimes appears on the Superficies, sometimes is deeply seated. It may also happen after the Birth, from a preceding Ulceration of the Parts about the Passage, by which means Flesh grows over it, and stops it up.

If the obstructing Membrane be deeply situated, the Undertaking is difficult ; we ought, however, to attempt the Cutting it by some small Instrument : If it lie on the Superficies, we are to cut it with a sharp Knife, and, if it be necessary, take it quite off. If Flesh be grown over the Passage, it must also be taken off with the Knife that is made for cutting out a Pterygium or Polypus : Afterwards we take a Linnen Tent, of a Size adapted to the Passage, and, moistening it with Water, roll it in Chalcitis powder'd, or some other Powder of that Kind, and thrust it into the Cavity, in order to prevent the Growth of new Flesh. If there be an Inflammation, we immediately withdraw it ; if Blood issue from the Passage, we apply a Sponge dipp'd in cold Water, and use other proper Means. *P. Æginet*, Lib. 6. Cap. 23.

Some Children have the Misfortune to be brought into the World with the Auditory Passage closed up, and obstructed by means of a certain preternatural Coat, which is sometimes thicker, and sometimes thinner ; sometimes discover'd as soon as they are born, and at other times not to be perceived, till, the Children growing up, a Privation of Speech too palpably betrays it ; for Deafness, and an Incapacity of uttering articulate Sounds, are generally inseparable Attendants upon each other.

other. For this Reason, when we find, that a Child does not begin to speak at the Age in which other Children usually do, we are to take a very minute and careful Survey of his Tongue and Ears; for it frequently happens, that some Fault lies latent in the inner *Ear*, by means of which the natural Capacity of Hearing is prevented and destroy'd; and this Defect is removed with more or less Difficulty, in proportion as it is seated deep and remote in the *Ear*, or near its Entrance: For when the very Entrance of the Passage is closed up by means of a certain Coat, the Cure is soon brought about; but when this Coat lies deeper, the Cure is less certain, and more difficult; because in the last-mention'd Case, in our Attempts to cut or remove the preternatural Coat, the Membrane of the *Tympanum*, which lies immediately behind it, is generally wounded along with it. In Cases where a preternatural Membrane closes up the very Entrance of the Passage, 'tis proper to make a crucial Incision into it, and prevent its Reunion, by means of a Tent kept in it as long as the Circumstances of the Case seem to require. By this Method the deaf Patient, if free from every other Defect, will, in all Probability, receive his Sense of Hearing, together with its natural Consequence, a Capacity of Speech. If, on the contrary, this superfluous and preternatural Membrane should happen to lie so deep, as to be contiguous to the Membrane of the *Tympanum*, the Cure, as I have already said, is generally doubtful and uncertain. But because, in this Case, little, or rather no Relief at all, is to be expected without an Operation, it seems far more advisable, on some Occasions, to attempt a Cure, tho' it should prove unsuccessful, than to suffer the Patient to remain without any Assistance, and abandon him to Despair. And when the Operation is undertaken, this superfluous and preternatural Coat is to be cut, either longitudinally or transversely, as the Circumstances of the Case require; but the Operator ought to have an exact and steady Hand, lest with the Point of his Incision-knife he should wound, or even quite pierce through, the Membrane of the *Tympanum*, which, in the Ears of Children, does not lie very deep.

OF EXTRANEOUS SUBSTANCES in the AUDITORY PASSAGE.

Not only small Pebbles, but Glafs, Beans, and Carob-stones, may fall into the Ears. As for Glafs and Pebbles, they remain in their proper Bigness; but Beans, and Carob-stones, and other things of that Nature, by imbibing the natural Humidity of the Body, swell, and occasion very great Pain.

Your only way then is, to take them out, either with the Ear-probe Hook, or Forceps, or to get them out by violent Concussion, placing the Ear upon a sort of Circle. I have often extracted such things, as well as Water fallen into the Ears, by Suction with a Reed, putting Wax about the End of the Reed next the Ear, in order to exclude the Air. For Pebbles, and such Matters, I got them out by putting some Wool about a Probe; and after smearing it with Resin of Turpentine, or some other glutinous Substance, gently introducing it into the Chancel of the Ear. If this Way does not succeed, give a Sternutatory, and stop the Mouth and Nostrils; but if this also be ineffectual, we must have recourse to Surgery, before an Inflammation or Convulsions come on, or the Case be dangerous.

Placing therefore the Patient upon the opposite Ear, we make a small lunar Section at the Basis of the Ear, behind the Part called the Lobe, and with the Hollow of the Probe take out the offensive Matter; we then sew up the Wound, and perfect the Cure with Vulneraries. *P. Aeginet. Lib. 6. Cap. 24.*

In what Manner preternatural Substances lodged in the EARS, and Things that have casually fallen into them, are to be extracted.

The Wax of the *Ear*, which was originally designed for excellent Purposes, is sometimes preternaturally indurated; and sometimes extraneous Substances, such as a Pea, a Bean, a small Stone, a Cherry-stone, an Animal of a small Size, or other Things of a like Nature, fall accidentally into the Auditory Passage. Now two very important Reasons concur to render a cautious and expeditious Extraction of such Substances highly proper and necessary: The one is, that the Patient may be speedily freed from those Pains, which, in Cases of this Nature, are sometimes very violent: The other is, that he may not be deprived of his Sense of Hearing.

Which of the above-mention'd Substances is lodged in the *Ear*, may be learn'd not only from the Relation of the Patient himself, but also by an Inspection of the *Ear*, or by introducing proper Instruments, or Probes, for that Purpose. In Cases where the Wax, being preternaturally indurated and dry'd, either renders the Hearing dull, or destroys it altogether, the most proper and efficacious Method which can be taken, is to drop a little of the Oil of Olives, or Almonds, or even a little warm Milk, into the affected *Ear*; ordering the Patient at the same time to recline his Head the opposite Way. A few Mi-

nutes after this, we must introduce a proper Ear-probe, and with it draw out the offending Matter by little and little. And if it should happen, that the Wax is harder than to admit of being soften'd, and extracted by taking these Measures once, they are to be repeated in the same manner again and again, till such time as the obstructing Matter is entirely remov'd. But if a small Stone, or Cherry-stone, is lodged in the *Ear*, the Passage ought carefully to be lubricated, by dropping a little tepid Milk or Oil into it; after which a proper Ear-probe, or such a Forceps as is represented by Letter E in *Tab. 22.* is to be introduced, and the offending Substance extracted with the utmost Caution and Delicacy. If a Pea, a Bean, or any other Substance of a like Nature, should happen to be lodged in the *Ear*, and become turgid, by means of the Humours and Moisture which surround it, our most expeditious Method of Relief, if it can neither be extracted by the Probe nor Forceps, is to introduce a very small Knife, with which we must divide the tumefied Body with all possible Caution, and then extract the several Parts of it one after another.

Sometimes very small Animals, or Insects, are also lodged in the *Ear*, and excite a very troublesome Titillation or Itching, and sometimes very acute Pains, by their Efforts to disentangle themselves from the Wax in which they stick. In this Case, if the Animal or Insect can be discovered by the Eye, it is to be forthwith extracted by the Probe or Forceps. But if it cannot possibly be seen, the most safe and commodious Method we can take is, to drop some Oil of Almonds or Olives, or even some tepid Spirit of Wine, into the Patient's *Ear*; and to order him to recline his Head to the opposite Side, that the Liquor may be retained, till we think the Animal or Insect is killed; for by the above-mentioned Substances all Animalcules or Insects whatever are very speedily destroy'd. Then the Liquor dropt into the *Ear* is to be discharged, and the Passage to be carefully cleansed, by means of a Probe armed with Lint or Cotton. Some Physicians in this Case order bitter Liquors, such as the Decoction of Wormwood, or of Colocynthis, to be dropp'd into the *Ear*, because these Substances also generally kill Animalcules or Insects. But in my Opinion Oils, and Spirit of Wine, are, on these Occasions, preferable to any other Liquors whatever, since some Species of Animalcules are so far from being kill'd by bitter Substances, that they rather delight in them, whereas no Species of Insect can be found, to which Oils, and Spirit of Wine, do not prove mortal.

OF TUBERCLES form'd in the MEATUS AUDITORIUS.

'Tis no uncommon Thing for Tubercles, or certain Excrescences of Flesh, to arise in the auditory Passage, which not only prove very uneasy to the Patient, but also do a considerable Injury to the Sense of Hearing. If this Disorder is recent, the Tubercles, or superfluous Flesh, may, for the most part, be destroy'd by the Use of corroding Medicines: But we must, in this Case, take care, that the deeper and more internal Part of the Passage be sufficiently guarded, and clos'd up with Lint or Cotton; lest, in Consequence of a Neglect of this kind, any Part of the corroding Application should reach the Membrane of the *Tympanum*, and prove injurious to it: For which Reason it seems generally most advisable to use a Knife, or the Scissars, for extirpating Tubercles of this kind, especially when they do not lie deep and remote in the Passage. But when a Protuberance of this Nature lies more conceal'd, and at a greater Distance from the external Orifice of the Passage, we must use small Hooks, and a proper Forceps, for drawing it towards us, and then extirpate it as effectually and safely as we possibly can; after which, 'tis proper to apply the Lapis Infernalis, again and again, to the remaining Roots of the Tubercle, 'till we have, by little and little, so thoroughly extirpated them, as to leave but small Probability of the Tubercle's rising afresh. If corrosive Medicines do not answer the Intention, and if the Tubercle does not lie too deep and remote, a proper actual Cautery may sometimes be us'd with Success. And, lastly, that Ligatures may be properly and commodiously us'd in the Extirpation and Cure of Tubercles of this kind, is abundantly plain, from the Cases describ'd and illustrated with Figures in *Hildanus, Cent. 3. Obs. 1.* and in the *Chirurgia* of *Purmannus, p. 280.*

For the Method of burning the *Ear*, in order to cure the Tooth-ach, see ODONTALGIA.

OF ACOUSTIC Instruments, such as are intended to assist the HEARING.

As the Sight is assisted by Spectacles, or other Glasses contriv'd for that Purpose, so the Hearing is sometimes enliven'd, and render'd quick, by means of proper Instruments, which we call *Acoustics*. Tho' these are of very various Figures, and for the most part bear some Resemblance to a Trumpet; yet I have generally found, that those were most commodious, and best answer'd the End, which were like a kind of Pipe, a little bend'd, narrow at the Beginning, but diverging and growing wider, like a Trumpet, at the other Extremity, such as that represented in *Tab. 40. Fig. 2.* Those also describ'd by *Nuck* and *Druckers*,

Deckkers, and represented in Tab. 40. by Fig. 3. and 4. are highly recommended. The two first of these Instruments, represented by Fig. 2. and 3. are us'd, by introducing the slender Part, A, into the Ear, and holding them in that Position by the Handles, B. The third of these Instruments, exhibited in Tab. 40. Fig. 4. being very small, and wreath'd up in form of a spiral Shell, is, by *Deckkers*, in *Exercitat. Practicis*, recommended as the most commodious of all others; because, in consequence of its Smallness, it may be so conceal'd under one's Hair, or a Wig, as scarce to be observable; whilst the slender Part, represented by A, is introduc'd into the Ear, and the Chords represented by B B carried round the Ear, in order to secure it. But, after the most accurate Observation, I have found, from Experience, that the two last-mention'd of these Instruments are not so contriv'd, as to answer the Intention so well as the first of these Instruments, represented by Fig. 2. which, besides the Advantage of its Simplicity, I have always found to be more useful, in Cases of this Nature, than the other two. Some Years ago there was a public Report, that one *Truchet*, a French Monk and Mathematician, who, for the singular Excellence of his Genius, was created a Member of the Royal Academy of *Paris*, had, in that City, contriv'd a certain acoustic Instrument, which was not only so small as that it might be conceal'd within the Ear, without projecting in the least, but also so exquisitely adapted to the Intention, as to prove surprisngly beneficial to the Hearing. But what sort of Instrument this may be, or whether its Use is attended with such uncommon Advantages, are Circumstances of which I have not yet got sufficient Information; tho' I have not only diligently inquir'd after these Particulars, of some German Physicians of my Acquaintance, who resided for some time at *Paris*, but also endeavour'd to get Satisfaction in this Point, by writing Letters to some Surgeons and Physicians of *Paris*. It were, however, to be wish'd, that Men of a mechanical Turn were more solicitous and industrious in contriving an Instrument of this kind, since it could not fail to be of singular Use and Advantage to Numbers of their Fellow-creatures. Some Years ago *Reusner*, a Physician of *Silesia*, in *Ephem. Nat. Cur. Cent. 5. Obs. 6.* recommended the Use of a certain Pipe, made of gilded Silver, and about a Span in Length, in a Difficulty of Hearing, as also in Pains and ringing Noises of the Ears. He order'd this Pipe to be introduc'd into the affected Ear, twice or thrice every Day; and asserted, that, by Suction, the pernicious Air, which, he suppos'd, prov'd injurious to the Ear, and excited the above-mention'd Disorders, might be exhausted. But as 'tis very much to be doubted, whether this pernicious Air is the Cause of these Disorders of the Ears, so neither have I been able to discover, why this Pipe should be made of Silver, rather than any other Metal, why it should be gilt, or what its particular Form or Size should be, since he has not describ'd it. In the mean time, 'till better and more commodious Instruments for assisting the Hearing are found out, I must, from my own Experience, recommend that simple Instrument, almost of the Shape of a Horn, made either of Brass or Silver, and represented by Fig. 2. as the most useful and efficacious in Disorders of this kind.

The Method of boring the LOBES of the EARS.

The Method of boring the Lobes of the Ears is thus: First of all, the Place to be pierced, which ought to be the Middle of the Lobe, is to be mark'd with Ink. Then, taking the Extremity of the Lobe in one Hand, and a common Steel Needle, of a pretty large Size, in the other, you are to perforate the Middle of the Lobe, in the very Part mark'd. Then you are to pass thro' the Perforation a Thread, or round Piece of Lead, such as that represented Tab. 40. Fig. 7. This must be bended into the Form of a Ring, which, for some succeeding Days, must be anointed twice or thrice a Day with Oil of Eggs, or St. John's-wort, and now-and-then gently mov'd backwards and forwards, 'till the Lips of the Perforation are indurated, and healed. But, in performing this Operation, 'tis adviseable to perforate a little higher than the Middle or inferior Parts of the Lobe; lest, by the Leaden Ear-rings, or Filaments, its Extremity should be dilacerated. But, for performing this Operation with the greater Accuracy and Expedition, some of the later Physicians have invented an Instrument for this very Purpose, which is represented Tab. 40. Fig. 5. Between the two Plates of this Machine, the Ear is plac'd, in such a Position, that the Hole, B, shall exhibit to the View the Part of the Ear mark'd for Perforation. Then the Ring, A, is to be drawn so far up, as to fix and secure the Lobe sufficiently. Then, by means of a Steel, a Golden, or a Silver Needle, either of the common Form, or, which is better, by one hollow at one of its Extremities, such as that represented in Fig. 6. A B, the Lobe itself is so perforated, that the leaden Filament, represented by Fig. 7. which is inserted within the hollow Part of the Needle, may be left in the Perforation by way of Ear-ring; which, as I have already said, must be gently mov'd backwards and forwards, till the Lips of the Perforation are heal'd. But, instead of this Needle, I think we

may still more commodiously use that represented by Fig. 8, which, at its obtuse Extremity, is divided like a Larding-pin, that it may the better retain and transmit the Leaden Filament, which is to be introduc'd into the Division, after half of the Needle is pass'd thro' the Lobe. But tho' Perforation of the Ears is generally perform'd, rather with a View to gratify the Fair Sex with the additional Ornaments of Ear-rings, than for any medicinal Purposes; yet, if we may believe *Riverius*, *Obs. Medic. 100.* and some other Physicians, it is so noble and effectual a Remedy against some Disorders, that none can possibly exceed it: For, says *Riverius*, if a triangular red-hot Needle is pass'd thro' the Lobe of the Ear; and if, as in a Seton, a Cord of Linen or Silk is introduc'd into the Perforation, in order to keep it open, by drawing it backwards and forwards; 'tis scarce credible what a large Quantity of noxious Humours shall be deriv'd to the Part, and discharg'd, or how successfully the most terrible Disorders of the Eyes, the Teeth, and even the Breast itself, may be cur'd, and the Danger of a Consumption carry'd off by this means. So that 'tis no wonder if some of our modern Physicians, especially such as are employ'd in curing Disorders of the Eyes, have begun by degrees to introduce the Perforation of the Ears into Practice. *M. A. Severinus* [*Lib. de Effic. Medic.*] also asserts, with *Paracelsus*, that this Operation is peculiarly advantageous in a beginning Deafness. *Heister. Institut. Chirurg.*

Explication of the Figures exhibited in Tab. 19. relative to the Organ of HEARING. From Du Verney.

Fig. 1. Represents the temporal Bone as large again as it naturally is, with its squamose Parts cut off, and its long Canal as much abraded as is necessary to give a fair and open View of the *Membrana Tympani*.

A exhibits a fore Prospect of the *Membrana Tympani* in its natural Situation.

B the Manubrium of the Malleus apply'd behind this Membrane.

C the long Branch of the Incus which appears thro' this Membrane, though 'tis situated at a small Distance from it.

D the Head of the Malleus.

E the solid Part of the Incus, with its short Branch.

F these discover'd by this Dissection of the adjacent Parts.

G the bony Canal half abraded.

H the Mastoide Apophysis.

I the Styloide Apophysis.

K the external Muscle of the Malleus in its natural Situation.

L a prick'd Line denoting the slender Apophysis of the *Malleus*, in which this Muscle is inserted.

Fig. 2. Exhibits a lateral Prospect of the *Membrana Tympani*, that its Inclination may be the better observed.

Fig. 3. Exhibits the same Prospect of the *Membrana Tympani* inserted in the Extremity of the bony Canal. It also represents the Manner in which that Side of the bony Canal, which is nearest the Face, lies distant at its lower Extremity from the *Membrana Tympani*, and how it insensibly approaches to it in proportion as it ascends. A, A, A, that Side of the bony Canal which lies nearest the Face.

Fig. 4. Exhibits a lateral View of the Incus and Stapes in their natural Situation.

A represents the solid Part of the Incus.

B its short Branch, of which, in this Disposition of the Parts, we have a fore Prospect.

C its long Branch.

D the Head of the Stapes join'd to the long Branch of the Incus, by means of the fourth small Bone.

Fig. 5. Represents the Rostrum or Beak of the long Branch of the Incus, the fourth small Bone, and the Head of the Stapes with its Cavity; but all four times as large as their natural Bulk.

A the Rostrum of the long Branch of the Incus.

B the fourth small Bone.

C the Head of the Stapes with its Cavity.

Fig. 6. Represents the Stapes five times as large as its natural Bulk.

A the Head of the Stapes.

B its Neck.

C C its Branches sulcated.

D its Basis.

E the Membrane of the Stapes.

Fig. 7. Represents the Basis of the Stapes in the same Situation, in order to shew, that it is also sulcated.

D the Basis of the Stapes.

Fig. 8. Represents the Stapes with its Muscle in their natural Situation.

A the Stapes.

B its Muscle; But both as large again as their natural Bulk.

Fig. 9. Represents the small Bones in the Situation, in which they are seen, when the Eye is apply'd to the Duct, which penetrates into the Mastoide Apophysis.

A the solid Part of the Incus.

B a fore View of its short Branch.

C its long Branch.

D a posterior View of the Manubrium of the Malleus.

E represents the superior Part of the Stapes.

Fig. 10. Represents the small Bones in their natural Situation, as they are seen on the opposite Side when the Eye is apply'd to the Duct which goes from the Ear to the Mouth.

A the Head of the Malleus, which conceals the solid Part of the Incus, and its short Branch.

B the Manubrium of the Malleus.

C the long Branch of the Incus.

D a side View of the Stapes. In this Representation of the small Bones, a small Rod is across, in order to shew what is superior, and what inferior, according to the various Views and Prospects.

Fig. 11. Exhibits a posterior View of the temporal Bone as much abraded as is necessary, to expose the *Membrana Tympani* to the Sight. Upon which Membrane are discover'd the *Malleus* and *Incus* in their posterior and anterior Views, together with that small nervous Branch call'd the *Chorda Tympani*, as also the Tendon of the external Muscle of the Malleus, all in their natural Situation: As also the Cavity which receives the Head of the Malleus; and the solid Part of the Incus.

A a posterior Prospect of the squamose Part of the Temporal Bone.

B the Mastoide Apophysis exhibited in the same Situation.

C C the Os Petrosum abraded.

D the *Membrana Tympani*.

E the Malleus.

F the *Incus*, whose short Branch lies upon the Entrance of the *Mentus*, which penetrates into the Sinuses of the Mastoide Apophysis.

G the Foramen of the Auditory Nerve.

1. the Tendon of the external Muscle of the Malleus.

2, 3. the *Chorda Tympani*.

Fig. 12. Represents the half of a Head, less by a third than the natural Bulk, with the whole superior Part of the Cranium taken away, and the remaining Part cut perpendicularly thro' the Middle of the Nose, that the Orifice of the Duct coming from the Ear to the Palate may be discover'd.

A A the Cavity of the Nose, with its Laminæ.

B the Bottom of the Palate.

C the Orifice of the Duct coming from the Ear to the Palate.

1. its cartilaginous Side, which forms a Border resembling a Crescent.

D the Wind-pipe cut thro' the Middle.

Fig. 13. Represents the Temporal Bone as large again as its natural Bulk, and prepar'd in such a manner as to expose to View the *Cochlea*, and the *semicircular Ducts*, in their natural Situation.

A the Arch of the Vestibulum.

B the *Fenestra Ovalis*, mark'd by a prick'd Line.

C the *Fenestra Rotunda* open.

D the *Spiral Lamina*, mark'd by a prick'd Line, separate from the spiral Canal which covers it; and from the Membrane by which it adheres to the Surface of that Canal.

1, 2, 3. the three *semicircular Ducts* in their natural Situation. 1. the Superior. 2. that in the Middle. 3. the Inferior. That in the Middle, and the Inferior, are open, in order to shew, that they are hollow.

Fig. 14. Represents the Covering of the *Cochlea* taken off, and view'd internally, in order to discover the *Spiral, Semicircular Canal*.

N. B. This is also represented *Tab. 9. Fig. 2.*

Fig. 15. Represents the *Cochlea* several times larger than the natural Bulk, and view'd according to its Height. In order to view it in this Situation, the anterior Part of its Covering is only raised by a perpendicular Section, which shews in what manner the *Lamina* makes two Circumvolutions and an half round the Spindle; in what manner it adheres to the Surface of the Canal, which serves instead of a Vault to it; and lastly, in what manner the Sides of this Canal, adhering to the Spindle, become as small and slender as the *Lamina* itself.

A the inferior Portion of the *Vestibulum*, which did not naturally belong to this Figure, but was left in order to shew in what manner the *Spiral Lamina* comes out of its Cavity, and passes before the *Fenestra Rotunda*.

B the *Fenestra Rotunda* shut up by a Membrane as slender as the *Membrana Tympani*.

1, 2, 3. the two Turns and an half made by the *Spiral Lamina* round the Spindle.

4, 5, 6. the two Turns and an half made by the *Spiral Duct*.

Fig. 16. Represents the *Spiral Lamina* suspended in the Air, and several times larger than its natural Bulk, together with the Membrane by which it adheres to the Surface of the Canal.

1, 2, 3. the *Spiral Lamina* itself.

4, 5, 6. the Membrane which adheres to it, and which appears to be separated from it by an intermediate Line.

Fig. 17. Represents the Spindle several times larger than its natural Bulk; upon which we may observe the Traces of the Circumvolutions of the *Spiral Lamina*, and *Spiral Duct*.

1, 2, 3. the Traces of the Circumvolutions of the *Spiral Lamina*, which are pierc'd with several small Holes, which give Passage to the Filaments of the auditory Nerve.

4, 5, 6. the Traces made by the Edges of the *Spiral Duct*.

Fig. 18. Represents the *Cochlea* in an erect Position, with one half cut off by a perpendicular Section, almost as in *Fig. 3.* except that in this the Bone is more abraded. This Figure is only designed for the Illustration and better understanding the third Figure. It is sufficient to observe, that in this the *Lamina* appears separated from the Surface of the Duct, that the interior Part of this Duct may appear the more conspicuously, and that we may see more distinctly in what manner its Sides are lengthen'd out in order to be join'd to the Spindle.

Fig. 19. Represents the *Vestibulum* and the three *semicircular Ducts* open, in order to discover the Distribution of their Vessels.

a the arterial Branch, which enters the *Vestibulum*.

b a small Branch of this Artery, which passes thro' the common Entrance of the *Vestibulum*, and distributes itself to the superior and inferior *Ducts*.

c the Branch which distributes itself over the *middle Duct*.

Fig. 20. Represents the Arteries of the *Cochlea, Vestibulum*, and three *semicircular Ducts*.

A the *Fenestra Rotunda*.

B the Aperture of the *Duct* affording a Passage for the Vessels; this is at the Entry of the inferior Winding of the *Cochlea*. It appears, that one Part of these Vessels is distributed to all the *Cochlea*, and another to the *Vestibulum*, and three *semicircular Ducts*, which last are represented as suspended in the Air.

Fig. 21. Represents a Portion of the *Vestibulum*, and the three *semicircular Ducts*, suspended in the Air, in order to shew their natural Situation, and their Orifices.

A the inferior Portion of the *Vestibulum*.

B the superior *Duct*.

C the inferior.

D that in the Middle.

1. the Orifice of the superior *semicircular Duct*.

2. the first Orifice of the *middle Duct*.

3. the Orifice of the inferior *Duct*.

4. the other Orifice of the *middle Duct*.

5. the common Orifice of the superior and inferior *Ducts*.

6. the first Aperture, which affords a Passage to one of the Branches of the *soft Portion* of the auditory Nerve.

7. the second Aperture, which affords a Passage to another Branch of the same Nerve.

Fig. 22. Represents the *Vestibulum* in the same Situation as in the former Figure, with the Nerves of the three *semicircular Ducts* suspended in the Air.

a a Branch of a Nerve which enters the *Vestibulum* by the Opening mark'd 6 in *Fig. 21*. It divides itself into three Branches, of which the first enters the Orifice of the superior *semicircular Canal*, the second the superior Orifice of the *middle Canal*, and the third, which is the smallest, descends to enter the common Orifice.

b the Branch which enters the Opening mark'd 7 in *Fig. 21*. and which is divided into two Branches, the inferior of which enters the Orifice of the *inferior Duct*, and the other advances into the common Orifice, and unites itself to the third Branch mark'd a. These Nerves are, here represented somewhat larger than their natural Size.

AURIS MARINA. A Shell-fish, very common on the Coasts of *Guernsey* and *Normandy*, and those of *Scotland*. It has but one Shell which defends it from Injuries, and is much in the Shape of an Ear. It adheres to the Rocks like a Limpin.

This Fish is not eaten raw, but the People of the Country where it is found usually boil, and then fry it. They are esteemed to make a good Fricassee. It is, like all other Shell-fish, an alealescent Food. It is called the *Aurmar*. It tastes somewhat like the Burs of Veal, but not quite so tender. The Shell on the Margin is perforated with five or six small regular Holes; and on the Inside resembles Mother of Pearl.

AURISCALPIUM, from *Auris*, an Ear, and *scalpo* to scratch. An Ear-picker, an Instrument to take Wax, or any other extraneous Body, out of the Ears.

AURORA CONSURGENS. A whimsical Phrase of the Alchymists, by which they would express the Vegetation of their Gold.

AURUM, Offic. Fabr. 1. Schrod. 361. Worm. 114. Charlt. Foss. 45. Aldrov. Mus. Metal. 37. Mer. Pin. 208. Schw. 367. Calc. Mus. 436. Kentm. 58. *Aurum, Sol,* Mont. Exot. **GOLD.**

Gold, Aurum in Latin, χρυσός in Greek, *Sol* by the Chymists, is the most noble, most perfect, and heaviest of all Metals; ductile, sonorous, and of a reddish-yellow Colour. It is sometimes found pure and unmixed in the Earth, in Rivers, and in the Clefts and Fissures of Stones, either in Dust, or larger Pieces. The Ores from which *Gold* is extracted by Fire, are sometimes a kind of Pyrites, of an ash or purple Colour. It is often found with Orpiment, and is likewise sometimes hid in the Mines of other Metals, especially of Silver, from which it must be separated by various Contrivances. There are many Rivers, among the Sands of which *Gold* is found in small Grains, and there are large *Gold* Mines in Norway, Hungary, and Guinea; but the richest are in Peru and Mexico.

Gold is the heaviest of all Metals, and of all known Bodies; but withal so soft and ductile, that it may be extended so as to have its Surface increased to 652,590 times. In all common Fires, it remains fixed; and, even when exposed in the Focus of the greatest Burning-glass, it suffers that Heat for a great while, before it begins to evaporate. It never contracts Rust, and is dissoluble in Aqua Regia. It is capable of being penetrated by Mercury, and its Texture so far opened, as to be turned into a soft Amalgama. It may be calcin'd by common Sulphur, if set on Fire and flaming. When dissolved by Aqua Regia, it may by Oil of Tartar per Deliquium, be precipitated into a blackish Powder, which being gently heated, either by Fire or by Attrition, flies off into the Air with a great Noise; whence it has the Name of *Aurum Fulminans*. The same Effect will happen by using Spirit of Sal Ammoniac, or any other urinous Spirit, instead of Oil of Tartar; but then the Fulmination requires a greater Degree of Fire.

The Analysis or Resolution of this Metal has been hitherto attempted without any Success. The Sulphur and Earth seem to be so strictly united in it, as not to be separable by the common Powers of Fire; and in the Focus of the greatest Burning-glass, intire Parcels of it fly off, without any apparent Resolution into its Principles.

The Use of *Gold* in Physic was unknown to the antient Greeks. The Arabians first talked of its Medicinal Virtues, and mixed it in their Compositions, being previously reduced to thin Leaves, upon a Persuasion, that it comforted the Heart, and exhilarated the Spirits; and that therefore it was proper in Palpitations of the Heart, and in Melancholies. The Chymists add farther, that a most powerful fixed Sulphur is contained in *Gold*, which, if it be mixed with the Blood, preserves it from all Corruption, and restores and revivifies human Nature in the same manner as the Sun, the great Original of this Sulphur, enlivens all Nature. Many Authors are of a quite different Opinion, because the Effects of *Gold* are found not to answer these great Pretensions; and it may be reasonably question'd, whether *Gold* be at all useful in Physic. Leaf *Gold* is an Ingredient in the *Confectio Alkermis Regia*, the *Confectio de Hyacintho*, *Pulvis Diamargaritæ Frigidus*, *Pulvis Lætificans*, and *Pulvis Pannonicus*, all of Charas. It is likewise used to gild Pills and Boluses.

The Virtues of the Chymical Preparations of *Gold* are equally dubious, because they seem to derive their Energy, not from the *Gold*, but from the Menstrua, and other Substances mixed with it. Whence we may conclude, that the most valuable and most precious of all Metals is the most useless in Physic, except when consider'd as an Antidote to Poverty.

The Tincture of *Gold*, or *Aurum Potabile*, made in this manner, is this:

Take of pure *Gold*, half a Dram; of *Aqua Regia*, two Ounces: Make a Solution, and pour upon it of the limpid essential Oil of Rosemary, an Ounce. Shake the Mixture well, and the Spirit of Salt will subside, deprived of its yellow Colour, which is retained in the Oil that swims at the Top. Separate this Oil from the Spirit by Inclination. Mix it with four or five Drams of Spirit of Wine highly rectify'd; digest them for a Month, and the Mixture will acquire a purple Colour. This Tincture is Diaphoretic and Sudorific, and is recommended in malignant Fevers. The Dose is from three to fifteen Drops.

But, after all, this is not a genuine Tincture of *Gold*, being only the *Gold* divided into very small Parts, by the Spiculae of the Aqua Regia, swimming in the Oil of Rosemary; neither do we know any radical Tincture of *Gold*, which may not, by evaporating the Oil, be reduced to a Powder, and

by melting the Powder into *Gold*. The chief Virtues of this Tincture are owing to the Oil of Rosemary.

The *Aurum Fulminans* is esteemed, not only for its fulminating Quality, but also for the Medicinal Virtues attributed to it; and is prepared in this manner:

Take of Spirit of Nitre, an Ounce; dissolve therein a Dram of Sal Ammoniac; throw into this Solution a Dram of *Gold* Dust, and dissolve it by a moderate Heat. Then pour into the Solution by Drops, Oil of Tartar per Deliquium, till the Ebullition ceases. The *Gold* will be precipitated like a yellow Mud. Then having poured off the Liquor by Inclination, wash and edulcorate the Powder, and dry it in the Shade.

This Powder, even by a gentle Attrition, goes off with a violent Noise, and, taken inwardly, is thought to be Diaphoretic; but it may more truly be said to relax the Intestines, as was observed by Ludovicus and Kening, who affirm, that this Preparation being given in Fevers, in which the Patient inclines to a Diarrhoea, promotes that Discharge, and, on that Account sometimes proves fatal.

Lastly, the Chymists tell us very wonderful Things about the Philosophers Stone, or an universal Tincture; which being projected on the ignobler Metals, penetrates their Parts so intimately, without any visible Shew, that they are in an Instant changed to a Metal, that has the Colour and Weight of *Gold*. They amuse us likewise with an universal Medicine, which cures all Diseases, and purges the Blood from all Disorders by a kind of Irradiation; so that Life and Health may be preserved for a very long Time, if not to Eternity. As I know nothing of this universal Medicine, I can say nothing about it. And for the Philosophers Stone, the Materials from which it is to be prepared are hitherto undetermined, as well as the Method of preparing it, whatever impertinent, ignorant Pretenders may boast. By these Pretensions, however, they have found the Secret, if not of making *Gold*, yet of getting *Gold* already made into their Hands, and for that Reason every prudent Man ought to beware of them. *Geoffroy.*

'Tis obvious to every one conversant in Matters of a physical Nature, that for a great while, especially since Chymistry began to be cultivated and improved with Care and Accuracy, Remedies prepared of *Gold* have been in great Repute, as being of a comforting Quality to the Constitution, and accommodated to the Cure of almost all Diseases; for the Antients imagined, that the Planets had a peculiar Connexion with, and Influence over, the Viscera of the human Body, and, in like manner, over the several Metals lodg'd in the Bowels of the Earth. For this Reason they affixed the Names of the Planets to Metals; and as they observed, that the Sun diffused Warmth, Vigour, Life, and Fruitfulness, to all Animals and Vegetables on our Globe, they imagined that *Gold* was also capable of producing a like Effect. And this common Tradition, or rather Fiction, insatuated not only the Vulgar, but also the Literati, and more especially the Physicians, to such a Degree, that they firmly believed, that Medicines, duly prepared from *Gold*, were far superior to all others, and operated like an universal Cordial and Comforter.

This mistaken Notion of *Gold* being able to cure Diseases, proceeded partly from an Ignorance of natural Philosophy, and of the real Manner in which Medicines acted, and partly from the insatiable Avarice of Practitioners; for when these so much extolled Preparations of *Gold* are brought to the Test in a chymical and rational Manner, it will be obvious, that they are so far from doing any Good, that they rather do Harm; for, first, Preparations of *Gold*, whether exhibited in Substance, or in the Form of Crocus, or in Powder, produce no manner of Effect, because nothing in Nature is capable of dissolving *Gold* besides Aqua Regia. And as Metals cannot act upon Bodies, till they be first so effectually dissolved, as to be able to enter their Pores; and since no Liquor or Menstruum capable of producing this Effect is found within the Body; 'tis plain that *Gold* in Substance must remain intire and untouched, and consequently can produce no manner of Effect upon the human Body.

Then again, when *Gold* is dissolved, this can be done by no other means than Aqua Regia, or common Salt and Nitre. These two last-mentioned Ingredients must be thoroughly boiled with *Gold* Leaves in a sufficient Quantity of Water. But the Solution procured in both these manners assumes a septic and corrosive Nature, though that obtained by the former Process is more remarkably so, than that procured by the other; for as Mercury, Copper, and Silver, when dissolved by Salts, or their Spirits, acquire so strong and virulent a Nature, as by corroding the nervous Coats of the Stomach and Intestines to excite Gripes, Spasms, Anxieties, Purging, and Vomiting; so the same Misfortune attends the Solution of *Gold*; a few Drops of which, exhibited in an aqueous Vehicle, I have often found to excite Gripes, Spasms, and Anxieties of the Præcordia.

For this Reason I think it highly proper to give a Caution with regard to the wary and prudent Use of metallic Medicines, whether

whether Gold or Silver, and to advise the Use of safer Remedies in their stead.

When many of the Chymists and Physicians observed, that when Gold was dissolved with Salts, or acid corrosive Spirits, it was so far from restoring and recruiting Strength in an incomparable and uncommon manner, that it assumed a drastic violent Quality, which was prejudicial and offensive to the Constitution; they began to think, that Gold was to be *radically* dissolved, and that by this means they should obtain a highly promising, and as it were an universal Medicine. By *radical and intimate Solution* they mean no more than a Solution by which the constituent Particles of Gold are so thoroughly and effectually separated and torn from their original Crasis, Union, and Texture, that the highest Attempts of Art shall never afterwards be able to reduce them to true Gold. For this Purpose they thought the common Menstruums entirely insufficient, and imagined that the Effect could only be brought about by some insipid Menstruum of so fine and subtle a Nature, as to enter its smallest Pores, and pervade its minutest Interstices.

But without any Contempt for the Abettors of this Notion, I must, for the Honour of Truth, declare, that I think these Conceits of the Chymists partly pleasing and delusive Chimeras, and partly interested and mercenary Frauds, by means of which they hunt for Fame and Riches; for the Subtlety and intimate Connexion and Adhesion of the Particles of Gold are almost incomprehensible, since one Grain of Gold dissolved is capable of communicating a metallic Taste, and a reddish Colour, to an incredible Quantity of Water. The Fluid then which must dissolve the intimate Commixtion and Adhesion of these minute Particles, must necessarily consist of the most subtle Parts, that it may penetrate into these inconceivably narrow Pores. Now 'tis very much, and at the same time very justly, to be doubted, whether there is in Nature a Substance from which such a Menstruum can be prepared. 'Tis true there is in Quicksilver a highly subtle insipid Fluid, which penetrates the Pores of Gold, but it cannot destroy the Texture of the smallest Corpuscle of that Metal; for, upon the Removal of the Mercury, the Gold is restored to its primitive Form and Nature.

And indeed I cannot help being surpris'd, why the happy Possessors of these wonderful *Arcana* do not talk of a radical Solution of some other Metal, such as Silver, Mercury, or Copper, since their perfect Menstruum ought to be capable of dissolving all Metals, because, being more ignoble than Gold, their Contexture is consequently looser, and the Cohesion of their Parts less; but what Chymist ever yet dared to subject a real Experiment to the Eyes or Judgments of the Intelligent, by means of which a radical Solution of Mercury or Lead might be obtained?

Then again, though it should be granted, that there is in Nature, or that there may be prepared by Art, such a Menstruum as is capable of so thoroughly reducing Gold to its first Principles, that there is no more any Possibility of their being reduced to Gold, yet still a Doubt remains, whether, when the Contexture and Adhesion of the Gold is thus dissolved, it still remains to be Gold, or whether it does not pass into some other Substance of a quite different Nature from that Metal, since it is well known, that the Form and Essence of Bodies depend upon the Disposition of their Pores, and the Cohesion of their Parts; and that all their Virtues and Operations flow from these, as from their original Source. Since then, upon their Hypothesis, so salutary and analeptic Qualities are ascribed to Gold, because it is so agreeable to the Heart, and vital Spirits; and since, when the Texture of that Metal is destroy'd, it is no longer genuine Gold; we may from this justly infer, that the Virtues of a Medicine thus prepared are not to be ascribed to Gold as Gold, but to another Mixture arising from the Dissolution of that Metal; for which Reason, such a Medicine cannot properly be called *Aurum Potabile*.

But still it would be sufficient for their Purpose, if it was absolutely evident, that such a Medicine could possibly be prepared from Gold; for 'tis to be observed, that no one has hitherto produced a fair and unexceptionable Example either of the Reality or Possibility of such a Solution. I have often told these impudent Boasters, that I absolutely deny'd the Existence of an insipid Menstruum, which, without producing a radical Solution, could so much as simply dissolve the more ignoble Metals, much less Gold; and have offered to pay them an hundred Dollars, if, in my Presence, they would exhibit an Experiment of this Kind, assuring them, at the same time, that I should never desire to be let into the Preparation of this mighty *Arcanum*; but I never could, nor ever shall, obtain this uncommon Favour at their Hands. 'Tis, however, a common Practice with these Artificers to have recourse to an ingenious and pleasant Subterfuge, by confidently saying, if their *Aurum Potabile* is subjected to a chymical Examination, and no Traces of Gold are to be found in it, that the Metal is radically dissolved, and consequently can never by any Art be reduced to its primitive and natural State.

But as for my own Part, I should not hesitate to prefer a Medicine, the Gold of which could be reduced to its former

State, provided it had sufficient Virtues to recommend it, before a Medicine of less Efficacy, whose Gold could not be restored to its pristine Condition. I do not affirm, that all the Preparations sold for *Aurum Potabile* are absolutely good for nothing, since they may have Virtues lodged in the Menstrua, and other Ingredients, of which they are composed; but that they should be sold for universal Remedies, and at so high a Price, are Circumstances that must inspire every Lover of Truth, and Friend to Society, with just and reasonable Indignation.

These universal Medicines prepared of Gold are often affirmed to be compounded and made up in such a manner, that they may safely be exhibited in any Disease whatever. This I myself may possibly believe; but the grand Question is, Whether it can be demonstrated to skilful and knowing Physicians, that such Preparations have any peculiar Efficacy above other Medicines.

I very readily believe, that many employ Gold in preparing their universal Medicines; but because they are ignorant of a just and rational chymical Theory, they deceive themselves, whilst they foolishly imagine, that the Efficacy of these Medicines depends upon the Gold; for the Whole of the Gold may easily be obtained by one who is perfectly acquainted with the Art of Reduction. But let no one find Fault with me for delivering my Sentiments with regard to these Medicines in so open and candid a manner.

I now come to examine that *cordial solar Tincture*, which is prepared from Gold with the Oil of Cinnamon in the following manner:

Let a well saturated Solution of the purest Gold be in some measure inspissated; then dissolve one Dram of pure Oil of Cinnamon in highly rectify'd Spirit of Wine, and let one Part of the Solution of Gold be mixed with three Parts of this Solution in a small Cucurbit placed in a Sand-heat. By this means these two Solutions are united into a kind of resinous Mass, of a Colour resembling that of Pitch, which, when dissolved in highly rectified Spirit of Wine, forms an Essence of a deep brown Colour, and of a grateful, but somewhat bitterish and subastrigent Taste, which may be exhibited with Success, when the Intention is to restore and confirm the Strength of the Patient.

But the Question is, Whether the Virtues of this Medicine depend upon the Gold thus dissolved? I absolutely deny, that they do; because when this Tincture is allowed to stand for a considerable time, a blackish Powder subsides, which, when washed with Spirit of Wine, and dry'd, is by *Aqua Regia* speedily again dissolved into a yellow Liquor, which, when apply'd to the Skin, soon after tinges it with a purple Colour, just as the Solution of Gold does.

The Reason of the Process is plainly this: The *Aqua Regia* concentrated in the Solution of the Gold, intimately uniting itself with the diluted Oil of Cinnamon, by means of an external Heat, constitutes the resinous Mass, into which the Corpuscles of the Gold by no means pass. But this resinous Substance, impregnated with the Oil of Cinnamon, is dissolved in highly rectified Spirit of Wine; and the Particles of the Gold, being by this means disengaged from it, subside to the Bottom of the Glass.

In like manner, that Tincture partakes very little of the Gold, which is commonly prepar'd of Sugar, sufficiently triturated with Leaf-gold, and afterwards calcin'd by a due Degree of Heat; for tho' the Acid of the Sugar may, by its Attacks, induce a certain Change upon the Gold, yet the Tincture, extracted in this Process by the Spirit of Wine, is no more than an Extract of the Sugar gently burnt, just as it usually happens in preparing the Tincture of Coral. Nor is this easily-prepar'd Tincture to be entirely deprived of the Praises due to it; for the sulphureous oily Principle, disengaged and set at Liberty by the gentle Combustion of the Sugar, is capable of imparting a brisker Motion to the languid Mass of Blood and Humours, which is a Circumstance of considerable Moment in Diseases accompany'd with a Defect of Strength, and in Cases where too hot Medicines are not proper: But, at the same time, this Remedy derives none of its Virtues from the Gold, the Whole of which is easily obtain'd from the liquid Sugar.

Others, mixing Gold with Antimony and Salt of Tartar, fuse the Mass, and, towards the End of the Fusion, add a certain Quantity of Sugar. Upon this Mixture, reduced to Powder, they pour tartariz'd Spirit of Wine, and so extract a Tincture of a brownish-red Colour, and a grateful Smell and Taste, which they believe to be the genuine Essence of Gold. 'Tis true, Gold is converted into a Powder, by being treated in this manner with an alkaline sulphureous Salt; but, at the same time, little or none of it is receiv'd into the tartariz'd Spirit of Wine. However, the Tincture obtain'd in this Process, which is partly the Tincture of Sugar, and partly that of Sulphur, can't be said to be altogether useless.

I now come to inquire, whether there is a Possibility of preparing, from Gold, a Medicine which shall be possess'd of any singular and uncommon Efficacy. And, indeed, I am of Opinion, that this may be done; for tho' Gold, consider'd as a Metal of a close and firm Texture, and which acquires a corrosive Quality from Salts, seems to promise very little in the Cure of Diseases, it nevertheless has a peculiar Use, as yet known to few, when skilfully treated with Mercury, or with Regulus of Antimony, which is of a mercurial Nature; for 'tis sufficiently known, that the penetrating active Quality of Mercury puts the Lymph of a human Body into strong Commotions. Nor are we ignorant of the active and violently emetic Qualities of the Regulus of Antimony; for these two Minerals, being easily soluble by an Admixture of any Salt, in Consequence of the Minuteness of their component Parts, penetrate very far, especially into the nervous and membranous Systems, where, producing violent Motions, they excite uncommon Tumults in the natural Functions; and, when judiciously used, are remarkably efficacious in obstinate Chronical Disorders.

Now, that Excess of Volatility, which, in Mercury and Regulus of Antimony, proves so prejudicial to those Parts of our Bodies which are destin'd for the Purposes of Sensation and Motion, cannot be more properly corrected, subdued, and balanced, than by an intimate Mixture of Gold with these Minerals; for, by this means, the excessive Minuteness of the Parts of Mercury, and Regulus of Antimony, is not only prevented by the more fixed Substance of the Gold, but their pernicious Solution on the Admixture of Salts is hindered in the Body; and because Gold itself is nothing more than a very fixed Mercury, hence it happens, that by the Addition of a more volatile Mercury it is put in Motion, and a Medicine is produced, which, when exhibited in gentle Doses, restores the languid Motions by mildly corroborating the Nervous System, an Effect of the last Importance in many Diseases both of the chronical and acute Kind.

But the purer the Mercury is, and the more thoroughly it is separated from its phlogistic and heterogeneous Substance by various Amalgamations with Silver and the Regulus of Antimony, by Triturations, Lotions, and Sublimations, the more easily and quickly it admits of a Conjunction with Gold, and affords a highly valuable Medicine. Now 'tis a sure Sign, that Mercury is pure and animated, when few Parts, four or five for Instance, to one of the Gold, are sufficient for its Amalgamation, or Solution, and when the Mercury becomes warm upon its being mixed with the Gold.

Then, again, another excellent Medicine is prepared from Gold, by mixing two Parts of the Regulus of Antimony with one Part of Gold in a proper Fire, and converting the Powder into a purple-colour'd Calx in a Glass Phial, by means of a circulatory Fire. This Powder, when duly prepared, is, on account of its diaphoretic Virtues, preferable to all the other Solar Preparations whatever.

I must, in the last Place, subjoin this Advice, that when People intend to prepare Medicines from Gold, they ought to make Choice of the purest and most free from all Alloy of Silver and Copper, with which, to use the chymical Term, it uses to be *associated*; for 'tis absolutely false, that the Gold of which the Ducats are coin'd is the purest, since in twenty-four Parts of the Gold there is one of Silver and Copper. But since the Copper passes into the Aqua Regia along with the Gold, and since we are well enough apprised of the virulent Qualities even of its minutest Particles, we may plainly perceive, that, in consequence of this, *Solar Preparations* must assume a hurtful and prejudicial Quality.

Aurum Fulminans, when prepared of impure Gold, as it commonly is, excites violent Gripes, and is not altogether free from a septic Quality, especially when it has not been wash'd with Rain-water; whereas no such hurtful Effect is to be dreaded from it, when prepared with the purest and most carefully edulcorated Gold.

Now there is no better Method of purifying Gold than by what Chymists call the *Fourth Treatment*, in which one Part of Gold is fused with three Parts of Silver, which when dissolved in Aqua Fortis, the pure Portion of the Gold remains in the Bottom of the Vessel. Then this Gold is to be dissolved in Aqua Regia, till it is so thoroughly saturated with it, that it can receive no more of the Gold; but the Aqua Regia ought to be of the best Kind, which is prepared by drawing Aqua Fortis off common Salt, or Sal Ammoniac. *Hoffmanni Obs. Chym.*

There is a Method of making Gold potable, which is specified under the Article *ÆTHER*. One Drop of this is said to be a very great *Cordial*, inasmuch that, in some Parts of Germany, even things little less than miraculous are reported of its reviving Qualities; and I am well informed, it has been frequently sold in that Country for a Ducat a Drop.

Glauber gives a very great Character of a mercurial Medicine, which he calls *Aurum Horizontale*, which *Helmont* had before him taken Notice of, not without great Encomiums.

If these whimsical Writers were possessed of such a Medicine,
VOL. I.

as there is some Reason to believe they were, they deserve very ill of Mankind for not giving the Process more intelligibly, and for depriving the World of so valuable a Remedy.

Helmont, in some Parts of his Works, seems to insinuate a Reason for his Conduct in this Particular, which, however, does not appear to be very satisfactory. He complains, that the Physicians, instead of giving him the Honour due to his Industry, loaded him with Reproaches, and persecuted him with Virulence, so as to endeavour to have his Book (*de Fibribus*) prohibited. It is possible, that a Resentment of such Treatment might induce him to conceal, what it would have been much the Interest of his Enemies to have divulged.

Glauber's Account of the *Aurum Horizontale*, is thus:

First, vulgar *Mercury*, by the Help of our secret *Salmiac*, may be so purified in the Space of one Day, as the Day following, by one only Abstraction of the Water of *Saltaberis*, it may be coagulated into a red fixed Medicine. Which swift Mortification, Coagulation, or Fixation, was highly esteemed by *Paracelsus* and *Helmont*. This *Mercury Paracelsus* insignized with the Title of *Coralline Mercury*, and celebrated the same with this illustrious Phrase, That, in the whole Nature of Things, there was not any Remedy more excellent for yielding Relief in the Gout and *French Disease*, adding that it recreates the Mind of the Artist, because it hath Entrance into Gold, and with the same is converted into Gold, and so not a few impoverished Chymists may again be stored with Riches. But, since the Death of this Philosopher, you shall not find, that there hath been one or other of the Professors of Chymistry unto this Day, who could prepare such a red fixed *Mercury*. The Reason hereof is, because none of the Sons of Art could comprehend the Water of *Saltaberis*, by which *Mercury* is to be brought to a fixed Redness; none, I say, until *Helmont*, that most learned Philosopher of our Age, discovered himself, witnessing that he also could prepare such *Mercury*, which he insignized with the Name of *Horizontal Gold*, affirming it would sufficiently supply whatsoever the Physician and Surgeon should need.

In like manner, that most expert Philosopher *Nuysemantius* wrote of such a *Mercury*, testifying that two or three Grains of it only being taken in some Confective, would purge out all Impurities from the human Body. Indeed *Helmont* expresses this in other Words, yet by them intimates, that it purgeth out all Filths from the Veins. Behold three famous Men, serving instead of the *Marpesian Columns* of all *Hermetic* Philosophy, and Medicine; for they have excellently written of this *Mercury*: Yet to the Inventions of these none of their Successors have added any thing, but have been still and quiet, shunning the Labour of preparing an Universal Medicine. Whosoever is seized with a Desire of succouring the Misery of the Sick, he will do better for publick Good, in using such a fixed *Mercury*, rather for expelling the Cruelty of a tyrannical Gout, and the *French Disease*, than for Gold making, unless so far as he hath need to use the same for necessary Aliments. *Glauber*.

AUSTER, *νότος*, the South Wind, which is hot and moist, and very productive of Diseases, according to *Hippocrates*, *Aphorism* 5. Book 3. For this *Galen*, *Com. 2. in Lib. 1. Epid. 1. 62.* renders a Reason: "Because, says he, the South Wind causes a Dissolution of Bodies, and a Fusion of the Humours, whereby they are subject to putrefy, especially if this Wind be attended with great Rains." The Disposition of the Season of the Year in which the South Wind most frequently blows, is called *Notia*, *νότια*, *Australis*, or *Austrina*, *Austral*.

AUSTERUS, in *Scribonius Largus*, No. 188.

AUSTER, *αυστρός*, austere, a kind of Taste, which, according to *Galen*, *Lib. 1. de Sim. Fac. Cap. 37.* belongs to an earthy, mixed with a tartareous saline Substance, having an astringent Quality, and differing from the *Acerbus*, tart, only in Intenseness. The *Cartesians* suppose Austereness to consist in having obtusangular Particles, like a blunt Saw. Things of an austere Taste are supposed by some, from their glutinous and tenacious Quality, which obstruct the Course of the Fluids, to generate the Stone, though they are not without their good Effects.

AUSTROMANTIA, a pretending to foretel Events from a superstitious Observation of the Winds. *Rulandus*.

AUTARCIA, *αὐτάρκεια*, from *αὐτός*, himself, and *ἀρκία*, to be sufficient. Self-sufficiency, Contentment with our own Condition; it is opposed to *Aplestia*, Infatigability. *Castellus*.

AUTETES, *αὐτῆς*, the same as AUTITES, which see.

AUTHADES, *αὐθάδης*, from *αὐτός*, himself. One who sets a high Value upon himself, and despises others.

AUTHEMERON, *αὐθημερον*, *αὐθιμῆρον*, from *αὐτός*, the same, and *ἡμερον*, a Day. The very same Day, *Hippocrates*, 4. *Aph. Book 3.* Hence a Medicine is called *Authemeron*, which gives Relief on the same Day it is taken. There are two Remedies of this Kind for Disorders of the Spleen in *Galen de C. M. S. L. Lib. 9. Cap. 2.* and in *Actius Tetrab. 3. Lib. 2.* there is a Phœnigmus Authemerios for a scirrhous Spleen.

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AUTHIS, *αὐθις*, again. In *Hippocrates, Lib. Epid.* it signifies hereafter, as *ὁ δὲ πυρετὸς αὐθις ἐκ ἐφίει*, “the Fever afterwards never left (her).”

AUTTES, *αὐττες*, is by some derived from *αὐτός*, the same, and *ἔτος*, a Year. Thus *αὐττης δινος*, is expounded in *Galen's Exegesis on Hippocrates*, by *ὁ αὐτοῦ αὐττης*, “Wine of this present Year.” *Pollux* expounds *αὐττης* *αὐττης*, by *ὁ ἐπιχόμενος*, “Wine of the same Country;” and *Suidas* by *αὐτογενής*, “the Product of the same Country.” Others explain it by *ὁ ἀμυγνὸς καὶ ὁ χωρὶς παρεχόμενος*, “undiluted,” and *Erotian* by *ἀπαρρηγμένον*, “undiluted.”

AUTOCINETOS, *αὐτοκίνητος*, from *αὐτός*, itself, and *κινέω*, to move; self-moved; a Word by which *Galen* expounds *αὐτοκίνητος* in *Hippocrates*.

AUTODROMOS, *αὐτοδρόμος*, from *αὐτός*, and *δρέμω*, to run. See the preceding Word.

AUTOGENES, *αὐτογενής*, from *αὐτός*, itself, and *γίνομαι*, to be produced. An Epithet of the *Narcissus* with a white Flower, because its bulbous Root, before it is set under Earth, puts forth Leaves, so that the Plant in one Sense seems to spring from itself. *Blancard*.

AUTOLITHOTOMOS, *αὐτολιθότομος*, from *αὐτός*, himself, *λίθος*, a Stone, and *τέμνω*, to cut. A Name bestowed on one who had the extraordinary Dexterity to cut himself for the Stone. *Castellus*.

AUTOMATOS, *αὐτόματος*, spontaneous. Things are said by *Hippocrates* to be done *αὐτόματως*, which are owing to the Efforts of Nature rather than the Violence of the Disease, or the Assistance of the Physician. *Aph. 2. Lib. 1.* and *Lib. πρὸς Ζωρῶν*. Thus again, *Aph. 2. Lib. 4.* *αὐτόματ' ἰόντα*, signifies such Things as pass off naturally, or which Nature spontaneously discharges. *Ἀπὸ τ' αὐτομάτου*, *Aph. 77. Lib. 4.* signifies, according to *Galen*, *ἐξαίρτως*, “suddenly,” or *ἀνευ σαφούς αἰτίας*, “without manifest Cause.” *Ἀυτομάτον*, *Lib. πρὸς Τέχνης*, denotes any thing that is supposed to happen merely by Chance, and spontaneously. The same Word, in *Lib. πρὸς Οὐσῶν*, is applied to a Flatus that passes off easily without being forced, and to the Air that insinuates itself insensibly into the Veins. *Ἀυτομάτου χυμοί*, in *Lib. πρὸς Τεφρῶν*, “spontaneous Juices,” are such as we spontaneously, and for that very Purpose, provide for our Nutrition, and about which human Art and Industry are employ'd. So *αὐτομάτως* imports the same as *ἐκασίας*, voluntarily, and of set Purpose; as *ἐκασία ἐλκνώματα* are spontaneous Ulcerations, which have some external Cause.

AUTOPHOSPHORUS, *αὐτοφωσφόρος*, the same as PHOSPHORUS, which see.

AUTOPSIA, *αὐτοψία*, from *αὐτός*, himself, and *ὄψομαι*, to see; ocular Evidence. *Autopsia* was a Word formerly proper to the Empiric School, by which they meant the Memory of those Things which they had often seen, and in the same Manner. This *Autopsia*, or the Observation and Memory of what every one sees with his own Eyes, is also highly necessary in the Dogmatical or Rational Physic. *Gal. de Part. Art. Med. Cap. 2.*

AUTOPYROS, *αὐτοπυρρός*. See ARTOS.

AUTOS, *αὐτός*.

Ἄυτος ἐωυτὸς γενέσθαι, in *Hippocrates, Lib. 7. Epid.* signifies to come to himself, or to his Senses. Thus, in the same way of speaking, *ἐξ ἐωυτοῦ εἶναι* is to be out of his Senses; and *ἐν τῷ αὐτῷ εἶναι*, in the same Book, is to be in his right Mind or Senses.

Ἄυτος, in *Galen's Exegesis*, is expounded by *μαλακίας*, vainly, rashly. *Hesychius* also expounds it by *μᾶται*, in vain.

AUTOUR, a sort of Bark, in Shape and Colour much resembling Cinnamon, only a little thicker and paler; the Inside is of the Colour of a broken Nutmeg, with a Multitude of Spangles. It is almost insipid, and has no Smell at all. We have it from the *Levant*; and it is one of the Ingredients in the Carmine Dye. *Lemery des Drogues*.

AUTUMNUS, *ἐθιβόταρον*, *ὁπώρην*, the Autumn. The Diseases particularly incident to this Season are, Fevers of an anomalous Kind, Pain of the Spleen, Dropsy, a Consumption, which the *Greeks* call *φθίσις* (Phthisis), a Difficulty of Urine, which they call *στεγνύσσεια* (Strangury), that Disease of the small Intestine, called by them *εἰλεός* (the Iliac Passion); besides a Flux (*Levitas Intestinalium*), called *λεντήρια* (a Lientery), Scatias (*Caxæ Dolores*), and Epilepsies. This Season is also liable to long and tedious Distempers, and proves mortal to those who have lingered under Distempers during the preceding Summer. Some it destroys with new Diseases, and involves others in very lasting ones, and particularly Quartans, which hold all the Winter. Nor is there any other Season of the Year more subject to pestilential Distempers of all sorts, and of all Degrees of Malignity. *Celsus, Lib. 2. Cap. 1.*

The greatest Danger is in Autumn, because of the Variety of Weather; therefore never go abroad without (good warm) Garments and Shoes, especially on a cold Day; nor sleep in the open Air, at least without being well covered. You are now

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allowed to eat somewhat plentifully, and to drink your Wine less diluted, but in smaller Quantities. Some think Apples hurtful, which are commonly eaten in immoderate Quantities all the Day long, without lessening that Proportion of more solid Food; so that not the Apples, but the Sum of all that is eaten, taken together, does the Mischief, in which, however, the Apples are the least concerned. But it is not proper to eat these more frequently than other Food; and, in short, it is necessary, when they come in Use, to diminish our Allowance of more solid Food. *Celsus, Lib. 1. Cap. 3.*

The Autumn being an unequal and disorderly Season, which produces all Kinds of Diseases, great Care is to be taken of the Diet and way of Living, that no Error may be committed in Concoction, the Use of Venery, or drinking cold Liquors, but that Men should be temperate in all things. To this End, we are to avoid the Intemperature of the Air, which in the Morning is cold, and sultry at Noon, and not fill ourselves with Autumnal Fruits, which are prejudicial, not only on account of the Plenty, but Malignity of the Humours and Flatulencies, which they generate, since the best of them, which are Figs and Grapes, breed Flatulencies, and corrupt the rest of the Aliment, except they be taken before other Food, in which Case they have no such ill Effects. As the Air grows colder, the Body is to be heated in proportion, and we are to manage in all things with an Eye to the Approach of Winter. After the Equinox, it will be convenient to make use of some evacuating Medicine, that no superfluous Humours may create Disturbance, and interrupt our Health, during the Winter. *Oribaf. Euporist. Lib. 1. Cap. 10.*

AUVER, pure, or soft Water. *Rulandus*.

AVULSUM, AVULSIO, *ἀποσπασίς*, *ἀτίσπασμα*. See APOSPASMATA.

AUXESIS, *αὐξήσις*, from *αὐξάνω*, to increase. The same as AUGMENTUM, which see.

AUXILIUM, *βοήθημα*, *βοήθεια*, Assistance; in a medicinal Sense, whatever assists Nature against a Disease; and so is the same as *Remedium*, or *Medicamentum*.

Celsus, in Answer to those who said, *Omne Auxilium necessarium esse inrescentibus Morbis, non cum jam per se finiuntur*, “That Assistance was always necessary in the Growth of Diseases, but superfluous in their Decline, when, if let alone, they would terminate of themselves,” asserts the Case to be otherwise; because, says he, a Disease, which would of itself terminate, may yet be sooner taken off by proper Assistance, which is necessary for two Reasons: First, that the Health may be re-established as soon as possible; and next, that the Remains of the Disease may not, on some slight Occasion, be exasperated. For a Disease may be less troublesome than before, and yet not quit the Patient, but hold fast by Reliques, which by Assistance may be dissolved. *Celsus, Lib. 2. Cap. 14.*

In a quite desperate Case, it would be a Piece of Weakness to expose, by Trial, the most successful Remedies to the Reproach of ignorant and unskilful Pretenders. I know some Physicians unacquainted with Method, who, thinking to imitate our Practice, have tried our Medicines upon Persons who were almost dead, and so rendered the seasonable Use of them suspected and dreaded. *Artius, Tet. 2. Serm. 1. Cap. 78.*

AUXYRIS, a corrupt Word for OSYRIS, Poets Rosemary, which see.

AXEA COMMISSURA, *τερχαειδύς*. A sort of Articulation. See TROCHOIDES.

AXEDO, a Spell, in *Marcellus Empiricus, Cap. 33.* to render a Person impotent.

AXICULUS, a Roller or Cylinder. *Rulandus*.

AXILLA, *μαχαλή*, *μαχαλίς*. The Cavity under the Arm, called the *Armhole*, or *Armpit*.

AXILLARIS VENA, ἡ διὰ τῆς μαχαλῆς φερόμενη φλέβη, the Vein that passes through the Armpit. *Galen*. The Axillary Vein. See VENA.

AXIOLOGOS, *ἀξιόλογος*, from *ἄξιος*, worthy, and *λόγος*, a Word. Worthy of Notice. *Hippocrates*, in his *Coac. Praenotiones*, applies this to *ἀπόσπασμα*, Apoptemation, where it imports, considerable, sufficient for a Crisis.

AXIOMA, *ἀξίωμα*, an Axiom. This signifies a Proposition which neither requires, nor admits of, Demonstration. But the Art of Physic has the Misfortune to have a great many Propositions laid down as Axioms relative to it, which greatly require, but, however, do not admit of, Demonstration.

AXIOPISTIA, *ἀξιοπιστία*, from *ἄξιος*, worthy, and *πίστις*, Faith, Confidence. It imports Authority.

AXIRNACH, superfluous Fat, which sometimes grows in the Tunics of the upper Eye-lids; this frequently is found in Children. *Castellus* from *Albucasis*.

AXIS, *ἄξων*, a Name given to a Tooth-like Eminence in the second Vertebra of the Neck. See VERTEBRÆ.

AXUNGIA, *ἄξυγσιον*, *ἄξιύγσιον*, *ἄξυγσιον*, signifies strictly old Hogs Lard, or, in general, old Lard, or Suet of any other Animal. See ADIPS.

AXUNGIA DE MUMIA, is Marrow.

AXUNGIA

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AXUNGIA VITRI, is Sandiver, or Salt of Glafs. A kind of Salt which separates from the Metal of Glafs whilst in Fusion. It is of an acrimonious and biting Taste. The Farriers use it for clearing the Eyes of Horses. It is also used for cleaning the Teeth; and is sometimes applied to running Ulcers, a Herpes, or the Itch, by way of Desiccative.

AXYRIS, the same as **AUXYRIS**, which see.

AYBORZAT, Galbanum. *Johnson.*

AYCOPHOS, burnt Brass. *Rulandus.*

AZAA. *Rulandus* explains this by *Magra, Terra rubea*. I suppose he means *Marga*, Marl. Red Marl.

AZAGOR, Verdigrise. *Rulandus.*

AZAMAR, Vermilion, or Native Cinnabar. *Ruland.*

AZAMO. *Rulandus* explains this by *Color Indus*, but I cannot tell what he means, unless *black*; or a Mixture of Blue and Purple, which is the *Indicum* of *Pliny*.

AZANEC. The same Author explains this by

ARMONIACUS. I suppose he means the Salt.

AZANITÆ ACOPON, the Name of an Acopon or Ointment in *Paulus Ægineta*.

AZANITÆ CERATUM, the Name of a Cerate in *Oribasi*.

AZARNET, Auripigmentum. *Rulandus.*

AZAROLUS. A Name for the *Mespilus Aronia*. *Neapolitan* Medlar.

AZCI, Ink. *Rulandus.*

AZEC, green Ink. *Ibidem.*

AZEDARACH, *Pseudosycamorus*, Offic. Mont. Ind. 37. *Azedarach*, Tourn. Inst. 616. Elem. Bot. 489. Boerh. Ind. A. 2. 236. *Azedarach Avicennæ*, Park. Theat. 1442. *Azedarach arbor Fraxini folio, flore cœruleo*, Raii Hist. 2. 1546.

Azedaracheni arbor, J. B. 1. 554. Chab. 44. *Arbor Fraxini folio, flore cœruleo*, C. B. Pin. 415. *Zizipha candida*, Ger. 1307. Emac. 1491. **THE BEAD-TREE**.

The Flowers of this Tree are said, by some, to be aperient and deobstruent; but others say they are poisonous.

AZEDEGRIN, the Lapis Hæmatites. *Rulandus.*

AZEFF, Scissile Alum. *Ibidem.*

AZEG, Vitriol. *Ibidem.*

AZEGI, the same as **ASAGI**.

AZEM, or **AZOM**. *Rulandus* explains this by *Butyrum coctum*.

AZEMASOR, Native Cinnabar. *Ibidem.*

AZENSALI, a sort of black Stone found amongst Gold. It signifies also a sort of Moss which grows on Rocks.

AZERNEC, the same as **ALFATIDA**, which see.

AZIMAR, Flos Æris, or Æs Ustum. See Æs.

AZIUS LAPIS. See **ASSIUS LAPIS**.

AZOB. *Rulandus* explains this by *Alumen Saccharinum*.

AZOCK, **AZOTH**. Barbarous Names given by *Paracelsus* to the *Mercurius Philosophorum*, that is, Quick-silver extracted from any metalline Body, which is the proper

corporeal Mercury. In another Sense, *Azoth*, in *Paracelsus*, signifies the universal Remedy prepared of Mercury, the Sun, and Moon, void of all specific Differences, and endued with a most intense Efficacy, and a most general kind of central Virtue, including all other Remedies in itself, in the same manner as the *Substantia Prima*, or first Substance, includes all the rest, excluding Accidents. This *Paracelsus* was reported to have carried about with him in the Pomel of his Sword. *Rulandus.*

AZOTH is also taken for the Liquor of sublimed Mercury, (or Quicksilver mixed with Vitriol and Salt, and so sublimed) which is also called *Aqua Permanens, Crystallus Philosophorum, Luna Physica*, or by whatever other mystical Name they please to give it. *Libavius.*

AZOTH is also the same as *Laton*, that is, Copper tinctor'd with a Gold Colour by its Mixture with Lapis Calammaris, which is the same as Aurichalcum or Brass. *Johnson.*

AZRAGAR, Verdigrise. *Rulandus.*

AZUB, Alum. *Ibidem.*

AZUBO. *Rulandus* explains this by *Vas Chymicum*: But I do not know whether he means some particular Chymical Vessel, or a Chymical Vessel in general.

AZUR, Red Coral. *Rulandus.*

AZURIUM, the Name of a Chymical Preparation described by *Albertus Magnus*. It consists of two Parts of Mercury, one third of Sulphur, and one fourth of Sal Ammoniac; these are to be mixed together in a Mortar, and put into a Glass Vessel, which is to be set over the Fire till a bluish Smoke arises; then it is to be taken from the Fire, the Glass is to be broken, and the Contents are to be powdered, which is the *Azurium*.

AZYGES, ἀζυγές. A Name for the *Os Sphenoides*.

AZYGOS, ἀζυγός, from α Negative, and ζυγός, a Pair. A Vein situated within the Thorax on the Right Side, having no Fellow on the Left, whence it is denominated *Azygos*, or *Vena sine Pari*. See **VENÆ**.

AZYMAR, Native Cinnabar. Vermilion.

AZYMOS, ἀζυμος, from α Negative, and ζυμος, Ferment. It generally signifies unfermented Bread, such as *Sea Biscuit*, which, *Galen* very justly observes, is extremely unwholesome. Every one is sensible, that, by mixing Water with Flour, a viscid and tenacious Paste is form'd; and Sea-biscuit, when moisten'd in the Stomach, is very likely to form the same kind of viscid Substance, unless the digestive Powers are excessively strong. But Fermentation destroys this Viscidity, and renders farinaceous Vegetables more easily digestible; but at the same time inclines the Substances fermented to Acidity. For this Reason unfermented Bread can only be proper, when the Stomach abounds with Acidities.

This Account of unfermented Bread I thought the more necessary; because *Sea-biscuit*, a very unwholesome Food, has of late been much in Use; and I find is, by some, very erroneously esteem'd preferable to Bread which has been fermented with Leaven.

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B, in the Chymical Alphabet, signifies Mercury, according to *Raymond Lully*.

BABUZICARIUS, βαβυζικαριος, from βαβδζω, to speak inarticulately. The Incubus, or Night-mare.

BACANON, βακανον. This Word is used by *Trallian*, and *Paulus Ægineta*, and signifies the Seeds of Cabbage. There is in *Myrepsus*, C. 150. an Antidote which takes its Name from *Bacanon*, and is said to be a good Hepatic Medicine.

BACAR. *Castellus*, from *Rulandus*, says, this is the same as *Pondus*, a Weight.

BACCA, that is, a Berry, is a round Fruit, for the most part soft, and covered with a thin Skin, containing Seeds in a pulpy Substance; but if it be harder, and cover'd with a thicker Skin, it is call'd *Pomum*, that is, an Apple.

BACCÆ are small roundish Fruits, that grow scattering upon Trees and Shrubs, and in that are distinguish'd from *Acini*, which are Berries hanging in Clusters.

Baccæ, in a more strict Sense, are used for a smaller thin-skinn'd Fruit, of a soft Pulp and Flesh, including moist Seeds in a thinner Membrane. Hence,

BACCIFERUS, (*Baccifer*, Lat. of *Bacca*, a Berry, and *fero*, I bear) is an Epithet added to the Names of an, Trees, Shrubs, or Plants, that bear Berries, as *Bryony*, *Dwarf Honey-*

suckle, *Lily of the Valley*, *Asparagus*, *Butchers-broom*, *Nightshade*, *Solomon's-seal*, and many others. *Miller's Dictionary.*

BACCÆ BERMUDENSIS, *Pilula Saponaria Anglorum*.

This Fruit, when fresh, is of a black Colour, inclining to Red, and something transparent. As it grows old, it turns still blacker. It contains a yellowish Kernel, the Taste of which is disagreeable. This Kernel, steep'd in Water, raises a Froth like Soap; and this Infusion is used in *Chlorosis*, and in Obstructions of the Liver. *Groffroy.*

They are the Fruit of the **ARBOR SAPONARIA**.

BACCHARIS, Offic. *Monspeliensium*, Ger. 647. Emac. 792. Raii Synop. 83. Parkinson, 114. Dill. Cat. 149. *Conyza major*, Schw. 55. *Conyza major vulgaris*, C. B. 265. Raii Hist. 1. 292. Tourn. Inst. 454. Boerh. Ind. A. 116. Buxb. 81. *Conyza major Matthioli*, *Baccharis quibusdam*, J. B. 2. 1051. *Conyzae majoris genus*, *Baccharis quibusdam*, Chab. 327. *Eupatorium montanum Verbasci folio, vulgare Baccharis dictum*, Hist. Oxon. 3. 99. **FLOWMAN'S SPIKENARD**.

Some call it *Baccar*.

Baccharis is a sweet-scented shrubby Plant, of which they use to make Garlands. The Leaves are tough, and of a Size between those of the Violet and Mullein. The Stalk is bent into

into Angles, and rises to the Height of a Cubit, is somewhat rough, and not without Suckers. The Flowers are of a purple Colour, inclining to White, and have a fragrant Smell; and the Roots are like those of black Hellebore, and smell like Cinamon. It delights in a rough dry Soil.

The Root, boil'd in Water, is effectual in Convulsions, Ruptures, Falls, Difficulty of Breathing, old Coughs, and a Difficulty of Urine; it provokes the Menses, and, given in Wine, is good against the Bites of venomous Creatures. One of the tender Roots, used as a Pessary, brings away the Birth; and the Decoction thereof is of Service, by way of Infusion, for Women in Child-bed. It is a very proper Ingredient in a *Diapasm*, on account of its extraordinary Fragrancy. The Leaves, which have an Astringency, make a proper Cataplasm for Pains of the Head, an Inflammation of the Eyes, a beginning *Ægileps*, an Inflammation of the Breasts after Delivery, and an *Erysipelas*: The very Smell of it provokes Sleep. *Dioscorides*, Lib. 3. Cap. 51.

From a branch'd woody Root, shooting forth many Fibres, this Plant sends out several round, softish, hairy Stalks, three or four Foot high; the lower Leaves grow on long Foot-stalks, being about three or four Inches long, and about half as broad, hairy, indented about the Edges, and blunt-pointed; the Leaves which grow on the Stalks are narrower. The Stalks are pretty much divided toward the Top, bearing a great Number of naked yellowish Flowers in scaly Calices, which pass away in Down; the Seed is long and slender; the Leaves and Flowers have a strong pleasant Smell. It grows in hilly chalky Places, and flowers in July.

Tho' this Plant is but rarely used, yet some account it a good Vulnerary, and useful in Bruises, Contusions, Ruptures, and inward Wounds, Pains in the Side, and Difficulty of Breathing. *Miller's Bot. Off.*

We learn from *Aristophanes*, *Pliny*, and *Athenæus*, that a precious Ointment, much esteem'd amongst the Antients, was call'd *βαρχαεύς*, probably from this Herb being a principal Ingredient in it. *Ileusichius* says it was also call'd *Myrtle Ointment*, and *Lydian Ointment*; and *Galen* explains it a Sort of *Lydian Ointment*.

Hippocrates, in his Treatise *De Natura Muliebri*, describes a Case, which seems to be an Abscess in the Uterus, and is much like the Case related by *La Motte*, *Observation* 429. wherein, as related by *Hippocrates*, a Hardness is perceived in the *Uterus*, and a Pain in the Bottom of the Belly. When this happens, he advises the Patient to lie on the Side least affected, and to apply this Ointment (*βαρχαεύς*) to the same Side, or what he calls the *White Oil*. He also takes Notice of the same Ointment in other Places of his Treatises on the Disorders of Women.

BACCIFICA. The same as *Hedera*, the Ivy. *Blancard*.

BACCHUS, Wine. It also signifies a sort of Fish, the same as *Mugil*, the Mullet. *Castellus*.

BACCINIA, the same as *VACCINIA*, which see. *Blanc*.

BACHARIS, the same as *Baccharis*.

BACILLUM, a small Stick, or any thing in the Shape of one. Thus a sort of Troche, made of pectoral Ingredients, round and long, that is, in the Form of a small Stick, are call'd *Bacilla*, or improperly *Bacilli*. Many Iron Instruments of the same Form, which are used in Chymistry, are also thus call'd.

The *Aves Cypriæ*, or perfum'd Candles, are from their Shape also call'd thus.

BACULUS. The same as *Bacillum*, and is more generally used to express the same thing.

BADISIS, *πάδις*. The Action of Walking.

BADITIS. A Name for the Nymphæa, or *Clava Herculis*, in *Marcellus Empiricus*; who says the Root of this, bruised, and eaten with Vinegar, for ten Days, by a Boy, makes him an Eunuch, without Excision.

BADUKKA. The proper Name for the *Capparis arborescens Indica*, *Flore tetrapetala*.

The Juice of the Leaves, mix'd with the Fat of wild Boars, makes a Liniment for the Gout. A Decoction of the Leaves and Flowers affords a Liquor, which, drank, purges the Belly; and the Steam thereof, received into the Mouth, deterges Ulcers therein. The Fruit, taken in Milk, causes Impotence. *Raii Hist. Plant.*

BAÏOS, *βαῖος*, in *Hippocrates*, signifies few. *Baïos* is an Epithet for a Malagma, in *Paulus Ægineta*, Lib. 7. C. 18.

BAGEDIA, a Pound of twelve Ounces. *Johnson*.

BAHEI COYOLLI. This, in the Opinion of *Ray*, is the same as the *Arica*, or *Fausel*.

BAHEL SCHULLI. An Indian Tree, call'd also *Genista spinosa Indica verticillata*, *flore purpureo-cæruleo*.

It is a thorny Shrub, that grows in watry Places; but there is another Species of it, which grows in sandy Ground, with Stalks and Leaves of a bright Green, and white Flowers, inclining somewhat to a Sky-blue.

The Decoction of the Root provokes Urine, and frees the Patient labouring under a Suppression of the same; whence it

cures the Dropsy, especially if it be boil'd with the Oil of the *Ficus infernalis*. The Leaves, boil'd, and pickled in Vinegar, have the same Effects. They make a Powder of the Leaves, which, drank with the Oil express'd from the Flowers of the *Ficus infernalis*, helps to discuss a Tumor in the Pudenda of the Male Sex. *Ray. Hist. Plant.*

BAIAC, *Çerufs*. *Rulandus*.

BALA, a Name for the *Musa*, or *Muza Arbor*. *Raii Hist.*

BALÆNA, Offic. *Recch. Hist. Mex.* 568. *Balæna vulgaris*, *Aldrov. de Pisc.* 688. *Jonf. de Pisc.* 152. *Charlt. Pisc.* 46. *Balæna vulgaris edentula, dorso non pinnato*, *Raii Synop. Pisc.* 6. *Balæna major, laminas in superiore maxilla habens, bipennis, fistula carens*, *Sib. Phal.* 27. *Balæna vulgo dicta sive Musculus*, *Rondel de Pisc.* 1. 475. *Balæna vulgo dicta sive Mysticetus Aristotelis, Musculus Plinii*, *Gesn. de Aquat.* 114. *Cetus*, *Schrod. THE WHALE*.

The Fat of a Whale is said, by *Schroder*, to be a good Topic for the Itch. The Oil is more used in Mechanics than Medicine. It is call'd *Train-oil*. *Pomet* gives the following Account of the Whale.

The Whale is the largest of all Fish, and is to be found in the Northern and North-west Seas. The Skeleton of one was shewn at *Paris* in 1658, whose Skull was between sixteen and seventeen Foot long, weighing four thousand six hundred Pounds; the Jaws ten Foot wide, and fourteen Foot long, weighing eleven hundred Pounds each; the Fins, which look like Hands, weighing each six hundred Pounds; the Joints of the Back, from the Head to the End of the Tail, forty-five Foot long; the first Joints weighing fifty Pounds, and the others less, according as they came nearer the End. I shall not trouble myself to give an Account of all that relates to that Animal, or the Manner of taking him, because several Authors have treated of it; but I shall only say, that there are two sorts of Whales; the one is call'd *Cachalot*, which differs from that which is call'd the *Whale*, in that the Mouth of the *Cachalot* is furnish'd with little flat Teeth, without a Beard or Whiskers; which is contrary to that which bears the Name of the *Whale*, which has nothing but Whiskers. 'Tis from the Fat or Lard of these Animals, that they draw *Whale-oil*, which is a very great Commodity, especially in Times of Peace, by reason of the great Use they have for it in *France*, as well for burning as several other Uses, wherein it is very necessary, particularly for refining Sulphur, and preparing some sorts of Skins for Leather. We have two sorts of Whale-oil come to *Paris*, the best of which is, that which we call *Huile de Grande Baye*, which is, by the *French*, made of the Fat immediately after it is taken from the *Whale*; whence the *French* Oils do not smell so ill as those made in *Holland*, because the *Dutch* do not make their Oils from the Fat so soon as it is drawn from the *Whale*, but bring it into *Holland* to be melted: Wherefore we ought to prefer the *French* Oils to those of *Holland*, which are easily known, because the *Dutch* are red and stinking, and yet are clear. The great Quantities we have of Whale-oil come from the Northern Sea, especially *Greenland*, from whence the *Hollanders* are supplied. *Pomet*.

The *Sperma Ceti* is, on all hands, agreed to be the Product of another sort of Whale, which is call'd

Cetus, Offic. *Cete admirabile aliud*, *Clus. Exot.* 131. *Balæna*, *Mer. Pin.* 190. *Balæna macrocephala, quæ binas tantum pinnas laterales habet*, *Sib. Phal.* 12. *Balæna major, inferiora tantum maxilla dentata, macrocephala bipennis*, *Raii Synop. Pisc.* 15. *Balæna*, *Ejusd. Ichth. Tab. A. f. 3.* *Cete*, 41. *Cete*, *Jonf. Tab.* 42. *Trompa*, *Park. Theat.* 1607. *Sperma Ceti falso dicta*, THE PARMASITTY WHALE. *Dale*.

It has been long disputed what the *Sperma Ceti* is; but *Pomet's* Account of it is the most satisfactory I have met with, as to its Preparation, as he has seen it made, and done it himself.

The *Sperma Ceti* is the Brain of a sort of *Whale* call'd *Byaris*, and, by the People of *St. John de Luz*, *Cachalot*. This Animal is named, by some, the Male *Whale*, and, in *Latin*, *Orcæ*. It is about twenty-five Foot long, and twelve Foot high, each of the Teeth weighing one Pound, which are very useful for several sorts of Works. These Creatures are very common at *Cape Finistère*, on the Coast of *Galicia*, and in *Norway*. In the Year 1688, there was one taken by a *Spanish* Ship that carried it to *St. Sebastian's*, from the Head of which were taken twenty-four Barrels of Brain, and from the Body ninety-six Barrels of Fat. They ought then to be undeceived, who believe, that *Sperma Ceti* is any thing else but the Brain of the *Cachalot*; and I can affirm this with Certainty, not having only seen this prepar'd, but having prepar'd it myself.

This *Sperma Ceti* is usually prepar'd at *Bayonne*, and *St. John de Luz*; and this Work is so rare in *France*, that there are not above two Persons at the latter Place who know how to prepare it. Those who prepare, take the Brain as aforesaid, and melt it over a gentle Fire; then they cast it into Moulds, like those wherein they refine Sugar; and after it is cool'd, and drain'd from the Oil, they take and melt it again, and proceed after the same

same manner, till such time as it be well purified, and very white; then with a Knife, made for the Purpose, they cut it into Scales or Flakes, just so as it appears when brought to us. As this Commodity is of some Consequence, by reason of its Price, I must observe, that we ought to chuse such as is in fine white Flakes or Scales, that are clear and transparent, of a fishy Smell; and take care, that it be not augmented with white Wax, as it happens but too often, which is easy to distinguish, as well from the Smell of the Wax, as because it is very thin, and of a more unpolish'd White; for we have no Commodity which is so sensible of the Air as this, which is the Reason why it ought to be carefully kept in Glässes, or in Barrells, close stopp'd from the Entrance of any Air, lest it turn yellow.

Pomet. may possibly be right, as to the Process generally used for making *Sperma Ceti*; but I have seen *Sperma Ceti* which has undergone no Treatment at all, except being put into Paper Bags, so that the Oil which adheres to it, may be absorb'd. The true *Sperma Ceti* is very white, and in very small Flakes, not much larger than the Crystals of Tartar: It dissolves by rubbing upon the Hand into a sort of Oil; and does not adhere to the Palate when chew'd, as the common Sort will; which makes me suspect, that it is mix'd with some other Substance, perhaps Wax, by those who make it for Sale, I can affirm with Certainty, that *Sperma Ceti* is neither the Oil, Brain, nor Sperme of the Whale, but a particular Substance found principally in the Head of the Fish; and flakes like boil'd Salmon, or Cod, when taken out. It is also found in other Parts of the Fish, but not in so large Quantities, or so good, as in the Head.

It is a noble Medicine in many Cases, tho' principally used in Bruises, inward Hurts, and after Delivery. It is an excellent Balsamic in many Distempers of the Breast; and gently deterges and heals. In Coughs, from sharp Rheums, Erosions, and Ulcerations, it is very safe, pleasant, and effectual; as also in Pleurifies, and inward Impostumations. Where the Mucus of the Bowels has been abraded by Acrimony and Choler, as in Diarrhoeas, and Dysenteries, this is a very good Healer. In Ulcerations of the Kidneys, and bloody Urine, it is likewise a very suitable Medicine; and, by softening and relaxing the Fibres, it contributes frequently to the Expulsion of Gravel, by enlarging the Passages. It is most conveniently made up into the Forms of Electuaries and Boles, with proper Conserves, and Things of the like Kind: And in such Forms, if it be skilfully mix'd, it gives them an agreeable Smoothness, and is not discoverable by the Patient. It is also very properly dissolv'd in a Draught, by the Help of the Yolk of an Egg; or it is made into an Emulsion by the same Management. The usual Dose is about half a Dram.

It is emollient and healing, outwardly used; but its greatest Use that way is in the Small-pox, melted with Oil of Almonds: With this the Pustules are just kept moist, when they begin to harden; and it wonderfully prevents those Scars they are apt to leave, by softening, and healing them up smooth. Altho' this is but a modern Practice in this Distemper, yet *Schroder* takes Notice of its Use in his Time, in smoothing and filling up the Fissures, or Cavities, made by Blotches and Scabs.

It is sometimes used as a Cosmetic, both in Puints, and in Pastes, to wash the Hands with.

BALAM PULLI. A Name for the Tamarind-tree. *Raii Hist. Plant.*

BALANDA, and **VALANIDA**, are Names for the *Æsculus*, or Beech. *Blancard.*

BALANDINA, a facitious Stone mention'd by *Raymond Lully*. As I do not understand the Original, it would be somewhat difficult to translate it. I shall therefore give it, as he has done, in *Latin*, in hopes, that those whom it may concern may understand it better than myself.

BALANDINA componitur ex argento vivo ferri, & est coloris rubei valde, & resplendet ratione sulphuris decocta & conversa in naturam aquæ aeræ ignitæ respiciens naturam argenti vivi; & quia sua natura est ex aere, ideo restringit sanguinem. Recipe ergo de aqua aeræ ferri, & imple mollem ceream post virtutem restrictivam acceptam, & indura illam in aqua terrestri restrictiva ferri, & prosequere per informationes supradictas.

BALANI, or **GLANDES**. A sort of Shell-fish, so call'd from their Shape, which is like that of an Acorn: They are also call'd *Pollicipedes*. Of these there are many Sorts, which are found adhering to the Rocks on the Coasts of *Spain*, *Brittany*, and *Normandy*.

As a Food, they are esteem'd aperitive.

BALANOCASTANUM. The same as **BULBOCASTANUM**, which see.

BALANOS, βαλανός, properly signifies an Acorn; but *Hippocrates*, in his Treatise *De Affectionibus*, uses it to express an Oak. It is also made use of sometimes, as in *Theophrastus*, to signify any glandiferous Tree.

Hence, from the Similitude of Form, *Balanos* (βαλανός) is frequently used to express Suppositories and Pessaries.

Balanos also signifies the *Glans Penis*.

VOL. I.

BALANUS MYREPSICA.

Ben, *Balanus myrepsica*, Offic. *Balanus myrepsica*, Ind. Med. 17. *Balanus myrepsica*, *Glans unguentaria*, *Nux Ben*, Mont. Exot. 9. Commel. Plant. Usu. 83. *Balanus myrepsica*, *five Glans unguentaria*. The OILY ACORN. Ger. 1214. Emac. 1400. *Glans unguentaria*, C. B. Pin. 402. Raii Hist. 2. 1738. Jons. Dendr. 130. *Nux unguentaria*, J. B. 1. 317. Chab. 24. *Nux Ben*, *five Glans unguentaria*, Park. Theat. 238. *Balanus myrepsica*, *siliqua triangulari, semine minore alato*, Breyn. Prod. 2. 22. Commel. Flo. Mal. 501. *Nux Ben Zeylanica*, *siliqua triangulari, seminibus alatis*, Herm. Parad. Bat. Prod. 357. Cat. Hort. Lugd. Bat. 692. *Arbor exotica*, *Lentisci folio*, C. B. Pin. 399. *Moringa*, Ferr. Flor. Cult. 385. Park. Theat. 1650. *Moringa Lentisci folio*, *fructu magno anguloso, in quo semine*, &c. J. B. 1. 435. Raii Hist. 2. 1745. Pluk. Almag. 253. *Katumurunga*, Herm. Mus. Zeyl. 62. *Moringon*, Hort. Mal. 6. 19. Tab. 9. *Coastis, quam alii Thapalex-palli, &c. vocant*, Jons. Dendr. 291. Herm. 119. *Lignum nephriticum*, Rech. in bot. ib. *Coast. alii Thapalex-palli*, Lact. Ind. Occid. 227. *Lignum nephriticum*, Park. Theat. 1664. Ind. Med. 68. Mont. Exot. 8. Raii Hist. 2. 1804. *Lignum nephriticum caruleo & flavo tingens*, J. B. 1. 492. Chab. 37. *Lignum peregrinum aquam ceruleam reddens*, C. B. Pin. 416. The BEN-NUT, NEPHRITIC WOOD.

According to *Dale*, the *Lignum nephriticum* is the Wood, and the *Balanus myrepsica* the Fruit of this Tree. See NEPHRITICUM LIGNUM.

Dioscorides gives the following Account of the Virtues of the *Balanus Myrepsica*.

A Dram of the Powder, drank in Oxycras, consumes the Spleen. It is apply'd to the same Part by way of Cataplasim, being mix'd with Meal of Darnel; and with Hydromel it makes a Cataplasim for the Gout. Boil'd in Vinegar, it deterges the Psoa and Lepra; with Nitre, it cleanses the Alphi, and black Ulcers; and in Urine, it clears the Face of Freckles, Spots, Sun-burns, and Pimples. Drank in Hydromel, it excites Vomiting, and loosens the Belly, but is very bad for the Stomach. The expressed Oil thereof, drank, works by Stool, but its Shell (ελαιδς αμυγδ) is more astringent. The Dregs that remain after Contusion and Expression, enter the Composition of Smegmas adapted for the Deterfion of Asperities and Itchings. *Dioscorides*, Lib. 4. Cap. 160.

The *Ben*, or *Balanus Myrepsica*, is a triangular Fruit of different Colours, of the Size of a Hazel-nut, being white or greyish, in which is found a white Almond, of a sweet Taste, disagreeable enough.

Chuse such Kernels as are white, fresh, and the heaviest you can get. They are of no other Use, that I know of, but to make Oil of, which has a great many good Qualities. The first is, that it has neither Taste nor Smell, and never grows rancid, which makes it of great Use to the Perfumers and others, for preserving the Scents of Flowers, as Jessamin, Oranges, Tuberoses, and the like. With this Oil they make all their sweet Essences, adding to the Flowers afore-named, as they fancy, Ambergrise, Musk, Civet, Benjamin, Storax, or Balsam of Peru. They grow in *Spain*, *Arabia*, *Ethiopia*, and *India*, where they come to Perfection, which they scarcely ever do in *Europe*.

The whole Nut is of a purging Quality, and the dry Pressing, or Powder, after the Oil is taken out, of a cleansing and drying Nature; the Shells or Husks bind extremely; the Kernels bruised, and drank with a little Ale, purge the Body from gross and thin Phlegm; the Oil, which is drawn out of the Nut, does the same, provokes Vomiting, and cleanses the Stomach of much foul Matter gather'd therein; but the Nut itself, in its gross Body, does much more trouble the Stomach, unless it be roasted at the Fire: for then they lose much of their emetic Quality, and only purge downwards; and they are given in Clysters, with very good Effect, to cleanse the Bowels, and cure the Colic. The Kernels, taken in Posset-drink to a Dram, mollify the Hardness of the Liver and Spleen. The Oil, besides its excellent Use to the Perfumers, is employ'd by the Glovers and Skinsners, to preserve their Leather from Spots or Stains, or from ever growing mouldy, as those perfumed with Oil of Almonds do. It more easily extracts, and longer retains, the Perfume of any thing infus'd in it, than any other Oil whatsoever. Being dropt into the Ears, it helps the Noise in them, and Deafness also. The Kernel, used with Vinegar and Nitre, is good against the Itch, Leprosy, running Sores, Scabs, Pimples, and other Defections of the Skin. Mix'd with Meal of Orobis, and apply'd Plaisterwise to the Side, it helps the Spleen, and eases the Gout, and Nerves which are pain'd with Cramps, Spasms, Colds, and Bruises. Mix'd with Honey, it dissolves Nodes, Tophes, Knots, and hard Tumors. *Pomet.*

The Oil of the *Balanus Myrepsica*, is sometimes called *Oleum Balaninum*.

This Fruit was termed *Glans Unguentaria*, because it yields an Oil by Expression, used by Perfumers in perfuming other

Oils, and never turns rancid. It is thought proper in the Itch, and some other cutaneous Diseases, as being a good Detergent; and is sometimes mixed with Bismuth and white Precipitate. Some say, that this Oil, mixed with a Hazel-nut, or Filbert, and taken in this manner, will purge upward and downward; and it is certain, that the Fruit itself, made into an Emulsion, is purgative. *Geoffroy*.

There is another Species of *Ben*, which is much larger than the preceding. It is call'd by *Monardus*, in his History of Drugs, *Ben magnum*, seu *Avellana purgatrix*, the great *Ben*, or purging *Filbert*. It grows in *America*, and is brought sometimes from *St. Domingo*, but is very scarce.

It purges upwards and downwards. The *Indians* use it for the Wind-colic. The Dose from half a Dram to a Dram. They weaken its Force by roasting it. *Lemery de Drogues*.

BALASIUS. A Gem of a purple or rosy Colour. It is a sort of Carbuncle. *Rulandus* relates some wonderful Effects of this precious Stone, which are not worth farther Notice, because utterly fabulous.

BALATRO, according to *Blancard*, is the same as *BAMBALIO*, which see.

BALAUSTIA, Balaustines. These are the Flowers of the *Balaustia*, Offic. Ger. 1262. Emac. 1450. *Balaustia Hispanica*, J. B. 1. 82. Chab. 3. *Balaustia flore pleno major*, C. B. Pin. 438. *Balaustium*, Mont. Ind. 37. Aldrov. Dendr. 579. *Malus Punica sylvestris major*, sive *Balaustium majus*, Park. Theat. 1511. Raii Hist. 2. 1463. *Balaustium majus sive Malus Punica sylvestris major*, Park. Parad. 430. *Punica flore pleno major*, Tourn. Inst. 636. Boerh. Ind. A. 2. 450. *Malus Punica pleniflora*, Jonsl. Dendr. 29. The BALAU-STINE-TREE.

The *Balaustine* is the Flower of the wild Pomgranate, of which there are several Kinds; for you meet with the white, the red, and the Rose-colour'd. It is like the *Cytinum* (Flower) of the Garden Pomgranate, and the Juice thereof is extracted in the same manner as *Hypocistis*.

It is of an astringent Quality, and effectual to the same Purposes as the *Hypocistis* and the *Cytinum*. *Dioscorides*, Lib. 1. Cap. 154.

There are two Sorts of *Balaustines* sold, the fine and the common: By the fine are meant the Husks, together with their Flowers; by the common, those which have nothing but the Husk. *Pomet*.

The *Balaustines*, as well as the *Cytines*, are of an earthy Nature, very astringent, inspissating, refrigerating, and drying; whence they are very often used for all Kinds of Fluxes, as the *Diarrhoea*, *Dysentery*, the *Uterine Flux*, and others; and for stopping of *Hæmorrhages* from Wounds. *Dale* from *Schroder*.

BALBIS, βάλβις, is explained by *Galen* in his *Exegesis*, an oblong Cavity; hence βάλβις, in *Hippocrates*, in his *Treatise de Articulis*, is spoken of the Cavity at the Extremity of the Humerus, to which the Ulna is articulated.

BALBUTIES. A Defect in the Speech. Properly that Sort of Stammering, where a Person sometimes hesitates, and immediately after speaks precipitately.

BALISTÆ OS. The *ASTRAGALUS*, which see.

BALISTIERA. *Rulandus* explains this by *Terra Rubra*.

BALLERUS. A small River-fish taken Notice of by *Aldrovandus* and *Lemery*, which is used in Food, but has no Medicinal Virtues attributed to it.

BALLOTE.

Marrubium nigrum Ballote, Offic. *Marrubium nigrum*, STINKING HOREHOUND. Ger. 566. Emac. 701. Raii Hist. 1. 571. Mer. Pin. 75. *Marrubium nigrum*, sive *Ballote*, J. B. 3. 318. Chab. 436. *Marrubium nigrum scetidum Ballote dictum*, Park. Theat. 1230. *Marrubium nigrum scetidum*, *Ballote Dioscoridis*, C. B. Pin. 230. Hist. Oxon. 3. 377. *Marrubium*, Rivin. Irr. Mon. *Ballote*, Tourn. Inst. 185. Elem. Bot. 153. Raii Synop. 3. 244. Boerh. Ind. A. 175. Rupp. Flor. Jen. 183. Dill. Cat. Giff. 135. Buxb. 35. *Ballote*, *Marrubium nigrum scetidum*, Merc. Bot. 1. 23. Phyt. Brit. 14. BLACK HOREHOUND.

Ballote, or black Horehound, shoots up from one Root in numerous, black, square, and somewhat hairy Stalks. The Leaves are like those of the common Horehound, but larger and rounder, black, and hairy, and set at Distances about the Stalk like those of the *Melissophyllum*, for which Reason some give it that Name. The Flowers are white, and grow about the Stalk in Whorles.

A Cataplasm of the Leaves, with Salt, is of Efficacy against the Bite of a Dog, and, dry'd over hot Cinders till they are wither'd, are good to repress a *Condyloma*; and used with Honey, deterge foul Ulcers. *Dioscorides*, Lib. 3. Cap. 117.

The black Horehound grows better, and more branched than the white, having square, hairy Stalks, and larger, darker Leaves, which more resemble those of dead Nettle, but are somewhat softer in handling, of a strong earthy Smell. The

Flowers grow among the Leaves, in two Clusters, on each Side of the Stalk, towards the Fore-part of it; each Cluster on a common Foot-stalk, and every Flower in a wide-mouth'd, five-corner'd, large Calyx, of a red Colour, being galeated and labiated, appearing but little above the Calyx, in the Bottom of which grow four small oblong Seeds. The Root is long, stringy, and spreading much. It grows by Path-ways, and in Hedges, and flowers in *July*.

The Leaves and Tops are used, tho' but seldom. Dr. *Bowle* commends it as a singular Remedy against hysteric and hypochondriac Affections. *Miller's Bot. Off.* p. 285.

It contains a great deal of Oil half exalted, and essential and volatile Salt. *Lemery des Drogues*.

Its Leaves are bitter, stinking, and give no Tincture of Red to the blue Paper, which makes us conjecture, that the natural Salt of the Earth is involved in it by a great deal of fetid Oil. Mr. *Ray* recommends a strong Decoction of it in hysteric and hypochondriac Cases. Make a Tea of equal Parts of white Horehound, stinking Horehound, and Betony-leaves, and drink every Day three or four Cups of it, in order to prevent the Gout, or render its Attacks the less violent. *Martyn's Tournefort*.

BALNEABILIS. An Epithet for such Waters as are proper for Bathing.

BALNEA, Baths.

These have in all Ages been used with a View to Cleanliness and Decency. Hence, probably their Medicinal Virtues were first discover'd. And it is remarkable, that frequent Ab-lutions have been injoin'd as a Duty, by most Religions which have been established in the East. At this Day the Orientals reproach the *Europeans* with Beastliness, on account of their neglecting to bathe; and, it must be confessed, with too much Reason.

Medea is said to be the first who employ'd warm Baths with a View to Health, and this gave Rise to the Fable, that she boil'd People alive.

Pelias, an old King of *Thessaly*, having an Inclination to try what Effects this new Medicine would have upon him, dy'd under the Experiment, which might add Credit to the Fable.

Melampus bath'd the Daughters of *Prætus*, in order to cure them of Madness.

The *Lacedemonians* immers'd their Children in Wine, as soon as ever they were born, tho' they were sensible, that it would make them die of Epileptic Fits, in case they were of a weak Constitution.

Those Robbers in foreign Parts, which are called *Bohemians*, a sort of Banditti, not unlike our Gypsies, wash their Children, as soon as born, in the next Fountain, to try their Strength.

Virgil says the same of the antient *Latins*.

Durum a stirpe genus, natos ad flumina primum, Deferimus, sævoque gelu duramus & undis.

Aesclepiades recommended cold Baths. *Dion Cassius*, Lib. 53. informs us, that *Augustus* being extremely ill, and not able to take Medicines, having an Aversion to them, *Antonius Musa* advis'd him to use cold Bathing, and to drink cold Water. This cur'd the Emperor; and besides other great Rewards from *Augustus* and the Senate, *Musa* for this was allow'd to wear a Gold Ring, a Privilege none before, enjoy'd unless Men of the first Quality in *Rome*.

The same Privilege was also granted to all those of his Profession; and they were farther granted an Immunity from all Taxes for ever.

But afterwards *Musa* treating *Marcellus* in the same manner, it cost that young Prince his Life. And upon this Account *Musa* was censur'd, as if *Livia* had bribed him to advise cold Bathing to this Prince improperly.

Those who consider what good Effects cold Baths may have upon People in Years, or such whose Fibres are relaxed; and, on the contrary, of what ill Consequence they may be, in young People, whose Fibres are in full Elasticity, will easily account for the different Effects of the cold Bath upon *Augustus* and his Nephew.

Suetonius in *Augusto*, Cap. 59. and 81. tells us, that the Senate decreed *Antonius Musa* a Statue of Brass, and set it next to that of *Aesculapius*.

He says also, that *Augustus*, at his Return from his Expedition to *Biscay*, having a Disorder in the Liver, consequent to a long Fluxion; *Antonius Musa* propos'd a hazardous Remedy, and quite contrary to those that had been try'd, which was to change his warm Fomentations for cold ones.

Pliny says, that before the Time of *Musa*, none but warm Baths were made use of; and that *Antonius Musa* brought cold ones into Credit.

Horace informs us, that he was forbid going to *Bainæ*, by *Antonius Musa*, and order'd to wash in cold Water, tho' in the

the Middle of Winter ; and that the People of *Baia* complain'd of the Sick, who left them, and expos'd their Heads and Stomachs to the cold Fountains at *Clusum* and *Gabii*.

Antonius Musa had a Brother, whose Name was *Euphorbus*, who was Physician to the second *Juba*, according to *Pliny*, and shared with the former the Credit of the Invention of cold Baths. *Pliny*, however, is mistaken when he tel's us, that *Antonius Musa* and *Euphorbus* were the Inventors of cold Baths, because they were recommended by *Asclepiades*, who liv'd before them.

Pliny, *Lib. 29. Cap. 1.* gives an Account of a Physician of *Marfeilles*, whose Name was *Charmis*. He came to fix at *Rome*, in the Reign of *Nero*, and made a great Fortune. He recommended much cold Baths in the Middle of Winter.

Plutarch in his *Symposiaks*, *Lib. 8. Quæst. 9.* gives us a very disadvantageous Idea of the *Roman* warm Baths. He says, that nothing contributes so much to change the Body, and produce new Diseases, as the Variety of Baths that were in his Time made use of ; by which the Body is first soften'd like Iron by Heat, and then again harden'd by dipping into cold Water, like Steel. Any one, says he, who had liv'd a few Years before us, if he was to look into our Baths, would say,

Ἐνθα ῥα εἰς Ἀχέειναι Περιφλεγέων τε ῥέουσι.

He adds, that their Ancestors used mild Baths, insomuch that *Alexander* the Great, when he had a Fever, slept in one ; and the Women amongst the *Galatæ* eat with their Children whilst they bath'd : But that in his Days, the Air that they respired in Breathing, was a Mixture of Moisture and Fire ; which suffer'd not one Particle of the Body to be at Rest, but mov'd all out of their proper Situations, till they extinguish'd themselves, as it were flaming from the Bath.

Baths are properly enough distinguished into *hot* and *cold* ; and both these differ extremely, according to the different Degrees of Heat and Coldness, and according to the various Contents of the Waters made use of.

Baths again are universal, that is, such as the whole Body is immers'd in ; or particular, that is, such as are apply'd to some Parts, as *Semicupia*, *Pediluvia*, and some Sorts of Fomentations.

It is well known in natural Philosophy, that Heat relaxes ; and that Cold, on the contrary, contracts and braces the Bodies it is apply'd to. This must necessarily render warm Baths very different from those which are cold in their Effects.

We find a great deal in *Hippocrates*, with respect to the Use of Baths, both warm and cold ; and both as Preservatives against, and Remedies for Distempers. But in his Treatise on *Regimen in acute Diseases*, he informs us, that *Conveniences for Bathing were to be met with in very few Houses*. Whence *Galen* infers, that Bathing was not so universal in the Time of *Hippocrates*, as afterwards.

The Uses of Bathing in particular Distempers, according to *Hippocrates*, are specify'd under their respective Articles ; mean time, his general Rules are, that the Patient who uses this Remedy should remain without moving from his Place, that he should not speak, but allow those who either bathe him, or pour Water on his Head, or rub him, to perform their several Offices : That Sponges should be used in rubbing him, and not the Instrument called *Strigil* : That the Patient should with great Precaution guard against Cold : That the Bath should not be used immediately after eating or drinking ; and that both these were also to be abstained from immediately after coming out of the Bath : That it ought to be considered, whether the Patient used the Bath when in Health ; and if he did, whether he reaped Advantage, or sustained any Injury by it : And, lastly, that the Bath should not be used by People who are either too soluble, or too colliive, in their Bellies, nor by Persons who have not made a previous Discharge of their Excrements, nor by those who are too weak, who have an Inclination to vomit, a Nausea, or a Bleeding at the Nose.

According to *Hippocrates*, the Use of the Bath is to refresh and moisten, to remove Weariness, to soften the Skin and Joints, to provoke Urine, to dispel Heaviness of the Head, and to render the Nostrils and other open Ducts of the Body moist. He allows two Baths a Day for such Patients as have been accustomed to bathing during their Health.

Celsus gives the following Directions with respect to Bathing.

Bathing is useful on two Accounts ; for sometimes, after the Fever is gone, it makes way for Health, by enabling the Patient to use a more plentiful Diet, and richer Wines ; sometimes it takes off the Fever itself. It is commonly advised, when the outer Skin wants to be relaxed, the corrupt Humours to be attracted from the inward Parts, and the Habit of the Body to be changed.

The Antients were pretty cautious in the Use of Bathing, *Asclepiades* more free ; nor indeed is it a thing to be dreaded, provided it be seasonable, otherwise it is pernicious. If a Person get rid of a Fever, so as to be free for a whole Day, he may on the next, after the usual Time of the Fit, safely venture to bathe. But if the Fever be periodical, so as to return the third or fourth Day, whenever it fails to make its usual Visit, Bathing may be safely used. While a Fever continues, if it be but gentle, and the Patient labour under an inveterate Disorder of the Spleen, the Bath is a wholesome Medicine, with this Caution, however, that there be no Hardness or Swelling about the Præcordia, no Roughness of the Tongue, no Pain in the Head, or middle Parts of the Body, and that the Fever does not at the same time increase.

In periodical Fevers there are two Seasons for Bathing ; one before the Shivering, the other after the Fever is gone ; but for those who have been long molested with slow Intermittents, the proper Time is, when the Access is entirely over, or, if that does not happen, at least when it is mitigated, and the Body in as good a State as can be expected in that kind of Illness.

A weak Person, who is to go into the Bath, must be careful, that he takes no Cold before his Entrance. When he is there, let him stop a while, and examine whether he perceives any Stricture about his Temples, and whether any Sweat arises. If the former happens, and the other does not follow, Bathing that Day will be of no Service ; but the Patient is to be gently anointed all over, and so carry'd back, and Cold is by all means to be avoided, and Abstinence is to be used. If there be no Alteration at the Temples, but a Sweat breaks out, first in those Parts, and afterwards in other Places, the Mouth is to be fomented with hot Water, and he is then to sit in the *Solium*. There he is also to mind whether his outer Skin shivers at the first Contact of the hot Water, which, though it can scarce happen where all things previous are right, is a certain Sign that Bathing will prove of no Effect.

A Person may know whether Unction ought to be perform'd before or after he goes into the hot Water, by considering his State of Health. But generally (except in particular Instances) after raising a Sweat, the Body is first to be gently and thoroughly anointed, and afterwards to be put into the hot Water. And here Regard also is to be had to the Strength ; for the Patient must not be suffered to fall into a fainting Fit through Excess of Heat, but the same is to be seasonably moderated, and the Body to be carefully covered with Cloaths, for its Defence against cold Blasts ; and there also the Patient is to sweat before he takes any thing. *Celsus*, *Lib. 2. Cap. 17.*

The preceding Directions relate only to warm Baths.

Hoffman has collected several Particulars relative to the Uses of Bathing, which are of too much Importance to be omitted.

The salutary Effects produced by the external Application of Water are no less conspicuous, than the Advantages arising from its internal Use. As a Proof of this, we need only direct our Views to Baths, the principal Basis and most material Ingredient of which is simple Water ; a Fluid, which, when pure, light, and without any adventitious Mixture, is possessed of highly medicinal and salutary Qualities. In all Ages, the more sagacious and skilful Physicians seem to have been sensible of this. Accordingly *Hippocrates*, *Galen*, *Cælius Aurelianus*, *Aretæus*, *Celsus*, and *Trallian*, inform us, that in their respective Times Baths of sweet and pure Water were much used in the most violent internal Distempers, especially in the most formidable Disorders of the Head, such as racking Pains and Madness, whether accompany'd with Melancholy and Dejectedness, or with Rage and Fury. The Antients used these Baths with uncommon Success. And *Alexander Trallianus* [*Lib. 1.*] affirms, “ That a Bath of pure and sweet Water is of all other things “ the best calculated for the Relief of the Melancholy ; but ‘tis “ necessary they should remain in it for a considerable time, “ even in the Summer.”

Aretæus approves of this Practice, and orders melancholy Patients to go often into Waters that are naturally hot, and remain in them for a considerable time, subjoining this as a Reason, that in those labouring under Melancholy the Muscles are dry and tense ; and that a more proper Step cannot be taken to remove their Disorder, than to render them lax and soft by Bathing.

Cælius Aurelianus also warmly recommends the Use of natural Waters in maniacal Cases.

And *Prosper Alpinus* [*de Medicina Ægyptiorum*] informs us, that many melancholy Patients were perfectly cured by the Use of moderately warm Baths.

In case of violent Pains arising from a Stone in the Kidneys, *Alexander Trallianus* and *Aretæus* highly recommend sitting up to the Navel in warm Baths.

I myself also, from repeated Experience, can affirm, that in violent Disorders of the Head, such as Madness, Melancholy, preternatural Stupidity and Torpor of Mind, disturbed Sleep, attended with frightful Dreams, Hemisrania, Vertigos, Dimness of Sight, violent Tooth-achs, racking Pains of the nervous
Parts,

Parts, Cardialgias, Iliac Passions, Colics, and Pains arising from the Stone in the Kidneys, Baths of the *Toplitz Waters*, as also sitting in pure Water moderately warm, have afforded instantaneous Relief, even during the Paroxysm itself, and under the immediate Attack of the Symptoms; for so surprising is the Efficacy of Baths in alleviating Pain, and relaxing spasmodic Strictures, that so long as the Patients remain in them, their Complaints cease, and their racking Spasms are not felt; but make a fresh Attack when they quit them. The Antients also, according to *Celsus*, and the *Egyptians*, according to *Alpinus*, used Baths no less frequently and successfully in all Fevers, except pestilential, whether of the continued or intermitting Kind, though they did not approve of them in the first Stages, and greatest Vigour, but only in the Declension of the Disease. And I myself have more than once successfully ordered emollient and nervous Baths to be used by old People labouring under Quartan Fevers, on their Days of Respite.

But Baths of pure and sweet Water not only soften and relax the Fibres when rigid, tense, and constricted with Spasms, and derive the Blood and Humours from the Head, and superior Parts, to others that are less noble and delicate, but also wonderfully assist the Circulation of the Blood and Juices, and promote cutaneous Secretion; for by their Humidity they relax the Fibres and Pores of the Skin; and by their Warmth they expand the Blood, and augment the Dilatation, and consequently the Contraction of the Heart and Arteries. Hence the Pulse is rendered fuller and quicker, and the Circulation of the Juices accelerated, by which means the Blood becoming more thin and fluid, is quickly conveyed to the most remote Tubes of the Body, and to all the Parts of its Surface; and the Elimination of the most subtle and noxious Sordes is promoted; which End will be still more effectually answered, if the Patient betake himself to Bed immediately after the Use of the Bath; because the Matter to be eliminated by the Pores of the Skin is restrained and pent up by the Gravitation and Pressure of the circumambient Water, so long as the Patient remains in the Bath. But when this Gravitation and Pressure are removed, that is, when the Patient comes out of the Bath, has his Body dry'd, and goes to Bed, so great a Quantity of Serum is discharged from the opened and expanded Tubuli, that the whole Surface of the Body is sometimes covered with a plentiful, but kindly Sweat.

Besides, Baths and *Semicupiums* (Half-baths) have a peculiar Efficacy in augmenting the Virtues, and assisting the Operations, of the more generous Medicines, as they are call'd, in the Cure of the most terrible Disorders; for 'tis sufficiently known, that the drinking acidulated or other wholesome Waters for the Cure of stubborn and chronic Disorders is attended with much happier Consequences, when Baths are used in Conjunction with them, than when they are drank without such Assistance. Thus the Efficacy of the *Caroline Waters*, and those of *Egra*, especially in curing spasmodic and hypochondriac Disorders, and Persons whose nervous Systems are weakened and impaired, appears more conspicuous and surprising, if after drinking them the Patients go into the warm Baths of *Toplitz*, and use them in a due manner, and for a proper time; for these Waters are very light, subtle, and pure, as appears both from statical Experiments, and from Evaporation, by which scarcely any thing of a solid Nature is left; so that by reason of their Subtlety and Purity, they wonderfully penetrate into the smallest Interstices of the solid Parts and Fibres, which are tense and contracted; and by their relaxing and emollient Nature, reduce them to their natural State.

Baths are of singular Efficacy in the Cure of a virulent *Lues Venerea*, attended with its most formidable Symptoms, provided the Patients go almost daily into them, and from thence to Bed with a View to Sweat; but the Body must first be prepared by Venesection, Laxatives, and such Medicines as sweeten the Blood, and proper Preparations of Mercury duly exhibited, whether with a View to promote Sweat, or excite a Flux of the Saliva. Decoctions also of the Roots and Woods recommended for purifying the Blood in cutaneous Disorders, Pains, Exulcerations, and such Distempers as draw their Origin from an excessive Acrimony of the Juices, produce much more speedy and happy Effects, if Baths are used along with them. And indeed 'tis scarce credible what a large Quantity of thick Fat, and fetid Sordes, is extracted from the most minute Tubuli of the Skin by Baths, and left swimming in the Water. If we have a Mind to prescribe the stronger Purgatives, or Substances of an acrid Nature, for exciting a Discharge of the Urine, these things are more safely exhibited after a previous Use of Baths. Though 'tis plain, that the Antients performed very wonderful Cures in obstinate Disorders, by means of white Hellebore; yet we find they never used that Remedy, 'till after the Patient had used the Bath; for by this means the Juices are not only rendered more fluid and moveable, and the excretory Duets opened, that the peccant Matter may be eliminated with the greater Ease, but the Fibres also of the solid Parts are relaxed, and by that means the violent Spasms, the Strictures, and all

the other bad Effects produced by such a drastic and herculean Medicine are prevented. The Bath is also used in taking Vomits, which, according to *Alpinus*, [*de Medicin. Meth.*] the *Egyptians* used every Month as a Preservative, but not except in a Bath.

When Diseases arising from Affections of the Uterus, and from a Relaxation or Stricture of its Vessels, are to be cured, such as the Fluor Albus, when Abortion is to be prevented; when fleshy Concretions, resembling a Polypus, or Moles, the frequent Causes of Abortions, are to be expell'd; or when the Menfes, flowing irregularly, are to be reduced to their natural and stated Periods, I always prescribe, and that with the desired Success, the frequent Use of Baths, in Conjunction with proper internal uterine Medicines, Emmenagogues, Balsamics, and Purgatives. Preparations of Steel, especially in a liquid Form, as also Infusions of the Peruvian Bark, or Decoctions of it in Wine, by their mild and balsamic Astringency, produce very remarkable and happy Effects by corroborating and strengthening the Tone of the Parts in Cachexies, in inveterate intermitting Fevers, and in that Species of the hypochondriac Affection, which draws its Origin from a Weakness of the peristaltic Motion of the Intestines. But still these Medicines will operate with more Safety and Success, if during the Time they are used the Body is duly exercised, or frequently softened and relaxed by Bathing. The Facts I now mention are sufficiently confirmed by long Experience.

But for Baths of this Kind we are not to use Spring-waters, nor such as are hard, heavy, or impregnated with a calcarious Earth; but must make Choice of those that are light and subtle, of which Kind is Rain-water and River-water, especially immediately after a Fall of Rain. Those Waters are also to be esteem'd most proper for Bathing, which, in Washing, soonest take Stains out of Linen Cloths; which, in the Preparation of Viſtuals, easily and thoroughly soften Roots and Pot-herbs; which, upon Evaporation, leave little or no Matter behind; and which, when pour'd hot upon Tea, or any other Substance of a like Nature, quickly enter their Pores, and extract their Virtues. But if such cannot be had, those we can come at must be corrected, and render'd soft by Air; which is most conveniently and effectually done by adding to them some Lixivium, or *Savon* Soap, or by pouring into them a sufficient Quantity of Milk, or by mixing with them a Decoction of wheaten Bran, of the Flowers or Leaves of Chamomile, or of the Flowers and Roots of white Lilies. The Antients, as appears from *Caelius Aurelianus*, added Oils, and used Baths thus prepared, for alleviating Pains, and curing those Suppressions of Urine which proceed from spasmodic Strictures of the Sphincter Muscles placed at the Orifice of the Bladder. And emollient Baths made up in this manner are of singular Service for facilitating Delivery, especially in Women with their first Child, or such as are a little advanced in Years, or of a dry Constitution, if used in the last Months of Gestation. In the *Tubercles* of Children, as also in the Rickets, these Baths are likewise of unspeakable Service; for they open the obstructed and constricted Duets, and, by rendering the nutritious Juices more fluid, occasion by that means a freer and more equable Distribution of them to the several Parts of the Body.

Quite different are the Effects of those natural Baths, which, by reason of the chalybeate Principle they contain, are so far from softening and relaxing, that they rather brace up and harden the Pores of the Body. Chalybeate Waters, of this Kind, are now discover'd in a great many Parts of Germany; but those of the greatest Note are, the Waters of *Freymwald*, in the Marquise of *Brandenburgh*; those of *Bebrun* in *Turingen*; those of *Radeberg*; those of *Lauchstade* in *Meissne*, discover'd by myself; and those of *Eppag* and *Weissenburg* in *Franconia*. Tho' all these Fountains yield a light and subtle Water, yet by reason of that most fine and sulphureous Crocus of Mars, which they deposit after standing some time, and by which they tinge, with a yellow Colour, Linen or Eggs thrown into the Bath, are of a somewhat astringent Taste; and may by a skillful Physician be preferib'd internally with Success, in those Cases where chalybeate Preparations are proper. But their external Use in Bathing is much more highly extoll'd, as being of singular Service to those who have phlegmatic Constitutions, a spongy State of the Fibres, and small full Vessels. They are also of Service in Cases where, by reason of a too slow Circulation of the Blood, the Juices are inspissated, become foul, and contract a scorbutic Impurity, whence arise Languors, rheumatic Pains, Gouts, arthritic Tumors, Contractions, and also in Weaknesses, and Retrigurations of the Joints; in all which Cases these corroborating Baths are highly serviceable, by means of their subtle sulphureous and chalybeate Principle, by which they impart Strength and Elasticity to the languid Parts, and brace up the relax'd and weaken'd Fibres.

And tho', such is the Nature and Genius of these astringent chalybeate Baths, that they ought only to be used when tepid and moderately warm, since, when too hot, they prove very hurtful to the Body, throw the Blood into preternatural Com-

motions,

motions, excite Head-achs, and induce Languors of the Parts; yet when the Patient, immediately after a tepid Bath of this Kind, in which the superior Part of the Water is rather cold than hot, is laid in Bed, he becomes warm, his Pulse beats strong, and often a plentiful Sweat is discharged from all the Parts of his Body, by which his Strength is considerably increased, and the external Parts are corroborated.

There are also artificial Baths of a more gently corroborating Nature, which are made of cephalic and nervous Powders, boil'd in light and pure Water, and are of very singular Efficacy. For preparing Baths of this Kind we principally make use of Bay-leaves, the Herb Baum, Southernwood, Marjoram, Origanum, wild Thyme, Thyme, Rosemary, Hyssop, Clary, dry'd Mint, Catmint, Pennyroyal, Feverfew, and Flowers of common Chamomile and Rosemary; all which put into a Bag, with the Addition of some Handfuls of common Salt and Potash, are to be gently boil'd in the Water. Washing the Body with medicated Waters of this Kind, in a Bathing-tub, produces very happy and salutary Effects in Paralytic Disorders, Imbecillity, and Weakness of the Joints; and proves very serviceable to weak, cachectic, and cold Constitutions; and to old Men, who, by the Violence of Distempers, have their Strength impair'd, their Nerves weaken'd, and the Tone of the Ligaments of their Joints in some measure destroy'd. They are no less remarkably beneficial in all Disorders of the Uterus, occasion'd by Abortion, difficult Births, or even Labours of any Kind: As also in Cases where the Compages of the Uterus is drench'd with too luxuriant Humidity; or where a viscid Humour, discharged from the Pudenda, occasions Sterility. They also wonderfully promote the obstructed Menfes; and the Hemorrhoids in Men, when stopp'd.

There are also Baths of another Kind, call'd Vapour-Baths, or *Laconic Baths*. In these the Vapours, whether hot and dry, such as these exhaling from kindled Spirits of Wine; or hot and moist, such as these arising from Herbs boil'd in Wine or Water, have immediate Access, either to the whole Body, or only to some particular Parts of it. These warm Exhalations are of singular Efficacy in promoting Sweat, opening the subcutaneous Ducts, softening the harden'd Parts, relaxing such as are tense and rigid, and dissolving viscid and tenacious Humours; and that the Horns and hardest Bones of Animals may be soften'd, and render'd pliable, by means of the warm Steams of Water alone, is a Fact known even to Cooks and Druggists. For this Reason, Vapour-Baths are of singular Service in cold Distempers, Anasarca, cedematous Tumors, Cases where the Limbs are become paralytic, the Lues Venerea, and Swellings of the Testicles: They are likewise very beneficial in repressing a Prolapsus either of the Uterus or Anus, and may be prepar'd of different Materials, according to the Nature and Genius of the Distemper they are intended to relieve. In that terrible Species of Tenesmus, which generally accompanies a Dysentery, the Steams of Milk, in which Elder-flowers have been boil'd, afford instantaneous Relief. Vapour-Baths of this Kind are also useful in provoking the Hemorrhoidal Discharge, and even necessary, in this Case, before the Application of Leeches; and, because they are excellently calculated for clearing the Mouths of the Uterine Veins, when block'd up with a preternatural Mucus, they are used with Success in Cases where the Menfes are either entirely obstructed, or discharged in too small a Quantity.

But as the most valuable and powerful Remedies produce the most dismal and fatal Effects, when used unskillfully, and without Circumspection; so the rash and unwary Use of Baths is more injurious than advantageous to the Patient. For this very Reason *Galen* lays down three Rules to be observed, with regard to Bathing: First, That those who are subject to Shivering, should by no means use Baths. Secondly, That those who have any of their Viscera weak, or unsound, should also avoid it. And thirdly, That such as have their *Primæ Viæ* clogg'd and encumber'd with Humours, should carefully avoid it. But the following Rules, with regard to the Use of the Bath, are better and more explicit: In case, then, of a *Plethora*, it is to be removed, and the Belly is to be render'd lax, before the warm Bath be used; lest, by the Heat, Congestions of the Blood and Humours should be produced in the Head and Breast, and those Parts sustain an irreparable Injury upon that Account.

In the next Place, we are to be very careful, lest, by the too great Heat of the Bath, our Bodies be so overheated, and as it were boil'd, as to discharge the Sweat too profusely, and in too large a Quantity; for this unwary Practice generally brings on Faintings, a Head-ach, Weariness of the whole Body, Torpor of Mind, Dryness of the Mouth, and Thirst, which if any one attempts to remove by Draughts of any cold Liquor, he may very readily draw upon himself a Disorder of a still more terrible Nature.

The most proper Time for using the hot Bath is the Morning, after the Body is refresh'd with Sleep, the Concoctions finish'd, and the Stomach empty; especially if proper Purgatives have been previously used. It is also expedient, not to plunge the Body all at once into the Bath, but to immerse it gradually,

VOL. I.

by first introducing the Legs, then the Thighs, then the Abdomen, as far as the *Scrobiculum Cordis*, augmenting at the same time, by little and little, the Heat of the Water. Nor are we to remain too long in hot Baths, especially of the chalybeate Kind, lest by that means our Strength should be impair'd. After using the Bath, the Patient is to be laid in Bed, with a View to sweat; which Design may also be assisted by proper Broths, Decoctions, or Infusions. But in natural warm Baths, such as those of *Wolkenstein* and *Wisenbad* in *Aleissie*, the Patient must often remain for some Hours, especially when the Disease is of a violent and obstinate Nature, arising from spasmodic Constrictions of the nervous Parts, when the Mind suffers by means of Hypochondriacal or Hysterical Disorders, or when the Parts are constricted, in consequence of an excessive Rigidity of the Ligaments and Nerves.

Those who have tender Heads, who are afflicted with Catarrhs and Coryzas, who are subject to Asthmas and Faintings, or who languish under slow Hectic Disorders, ought to abstain from all Baths, much more from Vapour-Baths, especially when consisting of kindled Spirits of Wine; for these throw the Blood into strong Commotions, and prove very hurtful to those of plethoric and cacochymic Habits; and, as Experience teaches us, by being imprudently used, bring on Disorders of the Head, Drowsiness, Apoplexies, Epilepsies, Dimness of Sight, and Gutta Serenas. In like manner Baths are prejudicial to People after a sharp Fit of Anger; and I myself remember some Cases of this Nature, where the Use of Baths has brought on Hectic Fevers, incurable Pains of the Parts, and even Palsies. And as the Colic often arises from the Blood stagnating within the Coats of the Intestines, whilst it is endeavouring to find a Passage thro' the Veins of the Anus, and as a Plethora often attends the racking Pains excited by the Stone, we are therefore, in these Cases, to beware of prescribing such warm Baths as these, which are not to be used till the Plethora, or too great Fulness of the Vessels, is removed. *Hoffman*.

Warm Bathing is a very powerful Remedy in that terrible Disease the *Hydrophobia*, arising from the Bite of a mad Dog, and creating at once an insatiable Thirst, and an unaccountable Dread of Water. The only known Remedy, in this Case, is *Bathing*, which was used by the Antients with this very Intention. Thus *Celsus* informs us, "That with some, immediately after receiving the Bite, it was customary to plunge the Patient into a Bath, and sweat him as long as his Strength would permit; taking care at the same time to open the Wound, that the Poison might be the more freely discharg'd from it. Then they bathe the Part affected with a large Quantity of pure and unmix'd Wine, which is esteem'd an Antidote against all Poisons whatsoever."

A Physician of *Duderstadt*, some time ago, inform'd me, that a mad Wolf, falling out of the Woods, bit several Persons, who died of the Bites they received: But at last, by the Advice and Persuasion of a common Countryman, some others, who had been bit, were prevail'd on to use a moderately warm Bath, after taking a Dose of *Venice Treacle*, and the Fungus of the Dog-rose, by the daily Repetition of which they were freed from Danger; for, in this Case, *warm Bathing* becomes serviceable, by drawing the subtle Poison to the Surface of the Body, and procuring it a free and uninterrupted Exit, when 'tis brought thither. On this Occasion a very considerable Difficulty may be started, which is, that with the same Intention the Antients used *cold Baths*, which, by bracing up the Pores, seem not only to prevent the Elimination of the Poison, but to repel it to the internal Parts. As for my own Share, I am of Opinion, that the *cold Bath* is not, in this Case, to be absolutely condemn'd; tho', at the same time, I look upon it as precarious, and not to be depended upon. However, if the Use of the cold Bath is succeeded by an intense Heat of the internal Parts, accompany'd with a quick Pulse, and profuse Sweats, which is often the Case, a considerable Benefit must be produced by it: But if, instead of these Consequences, the Nerves should be distended, and render'd rigid by the Cold, 'tis attended with imminent Danger. *Hoffman*.

There is a very singular Case related in *Misc. Nat. Cur. Dec. 2. Ann. 6. Obs. 239*.

A Woman frequently afflicted with an insupportable Pain of her Loins, having in vain used a great Variety of Remedies for its Removal, at last found, that nothing was so effectual for procuring Ease as the *warm Bath*; which having used for some time, she began gradually to recover; and every time she came out of the Bath, a thick unctuous Substance was found swimming in the Water, and might have been separated from it by means of a Spoon.

There is also another very remarkable Case to be found in the above-quoted Work:

A certain Man, terribly afflicted with Hypochondriac Disorders, having for some time used a Sweet-water Bath, the Water at last began to assume a strong and fetid Smell; and a thick blackish Matter was observed to swim in it. In short, the putrid Matter floating in the Bath, and the nauseous Smell, and acrid Quality of the Water, increasing gradually to such a Degree,

as to vellicate the Hands of the *Waiter*, there was a Necessity for a daily Supply of fresh Herbs, till the Patient was thoroughly recover'd. By the same means the learned *Volckhamer* cured a Widow Woman, whose Body every Day deposited in the Water more than three Handfuls of a like fetid Substance. *Hoffman*.

Tho' in hot Countries the frequent Use of Baths is exceedingly proper, yet they ought to be less frequently, and more sparingly, used in Climates where the Air is cold and moist. *Hoffman*.

Mr. *Lemery*, finding one of his Patients to have all the Symptoms of the Small-pox, and perceiving at the same time, that they made no Eruption, put him into a Bath of warm Water, which made them come out in great Abundance. His Intention was to remove the Dryness and Hardness of the Skin. There is something very remarkable in this uncommon and bold Piece of Practice. *Hist. A. 1711*.

Mr. *Homburg* advances what, to some, may appear a Paradox, That the Rheumatism may be cured by a Bath of cold Water, more effectually than by the warm Bath, or by Sweating: In order to prove his Assertion, he reasons in the following manner.

The Rheumatism is produced by an *acid Serum*, become so subtle as to make its Way thro' the Coats of the Veins, from which conveying itself into the Muscles, it stimulates their Fibres, and incommodes their Action.

In Consequence of the great Subtlety of this Serum, it diffuses itself very far, and cannot be again absorb'd by the Veins from which it was discharged.

The Disorder it occasions may be carried off either by procuring its total Discharge from the Body, or by forcing its Return into the Vessels from which it originally came.

A sufficient Heat will carry it quite out of the Body by Transpiration. A sufficient Degree of Cold will, on the other hand, condense it, and dispose it for entering again into the Veins. It is in this Case, perhaps, sufficient, that the Cold prevent a fresh Discharge of Serum, since the former will necessarily be attenuated and dissipated; whereas Heat, tho' it carry off the peccant Matter, yet disposes the Veins to a fresh Discharge of the offending Serum. *Hist. A. 1710*.

Sir *John Poyer* recommends cold Baths in the following Distempers:

Abortion,	Madness,
Agues,	Melancholy,
Apoplexy,	Morphew,
Appetite lost,	Sore Mouth,
Asthma,	Fits of the Mother,
Barrenness,	Nodes, or scirrhus Tumors,
Biting of mad Dogs,	Noise in the Ears,
Bleeding at Nose, or,	Numbness in the Limbs,
Bruises,	Obesity, or being over-fat,
Cancers,	Obstructions of Urine, Stools
Catarrhs,	and Menfes,
Corns,	Ophthalmia, or sore Eyes,
Consumptions in the Begin-	Palsy of the Tongue, Lip,
ning,	or any Member,
Convulsions,	Pains, Hysteric or Rheuma-
Costiveness,	tic, or hot windy running
Diabetes,	Pains,
Dimness of Sight,	Palpitation of the Heart,
Deafness,	Against all Infections of the
Weak Digestion,	Plague,
Dropsies,	Small-pox,
Erysipelas, or Wild-fire,	Piles,
All Fluxes by Sweat, Spit-	Priapism,
ting,	Quartans,
Fluor Albus,	Quinsies,
To prevent Gangrenes,	Redness of the Face,
Gonorrhœa,	Rickets,
Green-sickness,	Rheumatisms,
Gravel,	Ruptures,
Gout,	Sciatica,
Giddiness,	Scald Head,
Head-ach,	Scurvy,
Heart-burning,	Stone,
Hætic Fevers,	Stitches,
Hickup,	Strangury,
Hoarseness,	Swell'd Veins in the Leg,
Jaundice,	Stiffness in the Limbs,
Itch,	Tetters,
Inflammations,	Tooth-ach,
Incontinence of Urine,	Thirst,
King's-evil,	Thrush,
Kidneys stop'd, or inflamed,	Tympany,
Lethargy,	Windiness in any Part.
Leprosy,	

1. To bleed and purge, and use such proper Diet and Medicines, both before and after Bathing, which a rational Phy-

sician knows to be suitable to the Disease, and the Constitution of the Patient.

2. Not to bathe when hot and sweating, but cool; not to stay in the Bath above two or three Minutes, as the Patient can easily bear it; and to go in and out immediately, as on the first Bathing, after an Immersion of the whole Body.
3. To use the cold Bath before Dinner, fasting; or else in the Afternoon, towards Four or Five o'Clock: 'Tis dangerous to go in after plentiful Drinking and Eating.
4. Continue to bathe nine or ten times, at least two or three times in a Week.
5. To use Sweating, with cold Bathing, in Palsies and Rickets, and several Diseases affecting the Nerves, with Obstructions.
6. In Windiness, or Sizziness of the Humours, or their Flatulency, no Sweating is necessary; nor where Bathing is used for Preservation of Health, or the invigorating of the Animal Spirits.

That we may conceive a right Notion of the mechanical Action of Baths on the Body, I shall give Dr. *Wainwright's* Dissertation on this Subject, as it is very distinct, and has the Appearance of Truth to recommend it.

Sanctorius tells us, That Swimming in cold Water hinders Perspiration: And,

That the Flux of the Belly is cured by promoting Perspiration, that is, by warm Bathing:

That Hypochondriacal Persons are much eased, if their Bodies be render'd perspirable by frequent Bathing: And,

That Washing with cold Water heats robust Bodies, and refrigerates weak ones: And,

Warm Bathing, unless Crudities withstand, helps Perspiration, and refrigerates the internal Bowels.

Bathing hath been often used with Success in the Scab, the Leprosy, Elephantiasis, and most Defections of the Skin. In Variety of Pains, as Chronical Rheumatisms, Gout, Sciatica, Lameness, from either too great Contraction or Relaxation of the Tendons.

I sent a Gentlewoman to St. *Mongath's* Well, who was cured of an œdematous Tumor in her Ankle by Bathing, which would not yield to any Method that had been used, as Plaisters, discutient Fomentations, with Sal Ammoniac dissolv'd in them, Tinctures of Myrrh and Camphire, Oil of Tartar per Deliquium, laced Stockings, &c. She bathed her whole Body once a Day, to give a general Contraction and Tensity to all the Vessels, and promote a Dissolution and better Circulation to all the Humours; but bathed her swell'd Leg several times every Day, and kept it not too long in the Water at a time, for fear of chilling it; so that the Vibrations of the Fibres being made stronger and quicker so often in a Day, the obstructing Matter was removed, and the Vessels enabled to resist the distending Power of fresh Humours.

I am persuaded, that a prudent Management of the cold Bath would be very powerful in the Relief of Cachectic and Hydropic People, provided the Distempers be not too far advanced; and some dangerous Symptoms in a Consumption, if the Lungs be sound, would better be removed this way than any other: But this is not to be attempted, without the Advice of some judicious Physician. 'Tis a Specific in the Rickets. Hemorrhages, whether from the Nose, Guts, or Uterus, are not only stopp'd by cold Bathing, but the Return prevented. Nothing more certainly gives Ease, and effectually promotes the passing of Stones in a Nephritic Fit, than warm Bathing. And *Baglivi* tells us, that *Dolor Colicus fere semper mitefcit in Semicupio*, Colic Pains are almost always relieved in a *Semicupium*.

Bathing will always act the Part of a Diuretic. And plunging over the Head in cold Water, especially in Sea-water, will do more in the Cure of Melancholy, Madness, and particularly of that occasioned by the Bite of a mad Dog, than any other Medicine. There is nothing more adapted to the Cure of Frigidity, when owing to a former Excess of Venery, than the cold Bath.

It will also contribute its Share to the Cure both of a simple Gonorrhœa, and Fluor Albus. 'Tis often successful in a Palsy; and they who use it much are very little affected with the Change of Weather: And yet the Abuse of Bathing is very prejudicial; for Bath-guides are generally of a pale and ghastly Countenance, of a bloated Habit of Body, with ulcerated and swell'd Legs, which often end in a Dropsy.

Tho' Bathing hath been used with Advantage in all the Cases I have mention'd, yet there is scarce any of them all, but, in some Circumstances, it would be prejudicial: So that, to reap the best Advantage we can by reading the History of Cures perform'd by it, it is fit we should inquire, what Alterations are made by it in a human Body, that so we may know in what Conditions to order it, and what not.

Our Bodies are press'd upon by a Weight of Air, when the Mercury stands highest in the Barometer, equal to 30920 Pounds Troy. Now, if this Weight be either considerably increased or lessen'd, as 'tis often upon the Change of Weather, and

and the Influence of the Planets, it will certainly make a great Alteration in the Fluids of our Bodies. But this Pressure is never so much augmented as when we bathe ourselves: For Water, being above 800 times heavier than Air, must necessarily greatly increase the Pressure: And a Body, sunk 35 Feet in Water, sustains double the Weight it does in the Air; and tho', when we are near the Top, the Pressure upon our Bodies is mightily lessen'd, yet 'tis much greater than in the open Air; so that all the Consequents of a greater Pressure will happen upon Bathing.

The tender Fibrillæ, of which the Skin is composed, being unequal in Strength and Tensity, some of them will more resist the Pressure of the Water than others; from whence proceeds that Rugosity of the Skin upon Bathing. 'Tis certain, that the Surface of the Body, and those Parts adjoining to it, will be the most and first compress'd, and those at the Centre the least and latest; so that the Blood will be forced, in great Plenty, upon the Viscera, where there is the least Resistance. For this Reason, it is never safe for those to bathe who have weak or ulcerated Bowels; nor can they, without Danger of Life, or Swooning at least, who have a very weak Pulse, enter into a cold Bath. The fourth Aphorism is only accounted for this way, that is, *That cold Bathing heats robust Bodies, and refrigerates weak ones*: For the Contraction of the Heart, in robust Bodies, being strong, makes the greater Conflict with the Resistance it meets with, in promoting the Circulation of the Blood, in such as enter the cold Bath, whereby the Blood is more broken, and the hot Particles set at Liberty. On the contrary, in those who are weak, the Contraction of the Heart is but just able to continue the Blood in its Circulation, which will, by reason of the Resistance it meets with, be slower than before; and therefore they will have a Sense of Cold, or be refrigerated.

One that goes into a cold Bath, if he plunge not himself over Head, is subject to the Head-ach: The Reason of this is plain from what I have observed before; for there being the least Resistance to the circulating Blood in the Head, which is press'd upon only by the Weight of the Air, it will run in such Plenty thither, as to distend the Vessels beyond their usual Tone, and thereby occasion a Sense of Pain. And why People are so chearful, brisk, and lively after Bathing, is not only because the perspirable Matter is thrown off more plentifully, (according to *Sanctorius's* Observations, that is, *Melancholy is overcome by a free Perspiration*; and *Chearfulness, without an evident Cause, proceeds from Perspiration succeeding well*) but also from a Sense of less Weight upon the Body. A Person two Feet under Water (as they often are who use Bathing) sustains a Weight of Water, added to that of Air, (supposing still the Area of his Skin to be equal to 15 square Feet) equal to 2280 Pounds; for, 2, the Number of cubical Feet of Water, pressing upon a Foot square of the Skin $\times 76$, the Number of Pounds in a cubical Foot of Water is $= 152$, $\times 15$, the supposed Number of square Feet on the Surface of the Body is $= 2280$ Pounds Troy.

So that the first and most obvious Consequence of Bathing is, by a greater Pressure upon our Bodies, to straiten the Vessels, and thereby dissolve the Humours, and make them fitter to pass the Glands to be evacuated; as also to squeeze out any viscid obstructing Matter, that sticks to the Sides of the Vessels, and render the Motion of the Fluids of our Bodies more free and easy. In the next Place, they who enter into the Bath have the Quantity of their Blood mightily increased in the Brain and Viscera, being forced thither, where there is the least Resistance; and the Quantity of separated Matter in any Gland being as the Quantity of Blood multiply'd into its Celerity, at the respective Glands, the Quantity of Animal Spirits, of Urine, of Gall, Succus Pancreatis, &c. will be mightily increased, and any Impediment to the Secretion of these Fluids, will probably be removed, these Liquors flowing with a greater Celerity. So that,

1. If we would have the Blood dissolved;
2. Or any viscid Matter, adhering to the Sides of the Vessels, removed;
3. Or the Glands scour'd;
4. Or a greater Quantity of Spirits generated, and moved with greater Celerity thro' the Nerves;
5. Or would force the Urine;
6. Or remove Obstructions in the Liver, Spleen, Pancreas, and Mesentery, if they be not grown too obstinate (in which Case 'tis dangerous); we ought to order Bathing.

It is for the first, second, and third Reason, that it cures the Itch, Leprosy, and Elephantiasis: It is for the fourth Reason, together with the former, that it cures the Palsy, Melancholy, Madness, and the Bite of a mad Dog: It is for the fifth, that it helps the Passage of Gravel: For the sixth, join'd with the other, that it helps Cachectic, Icteric, and Hydropic People, before the Distempers be too far advanced.

These Ends, which are compassed by a greater Pressure, are more effectually obtained by whatever increases the Weight of the Water, or contracts the Fibres of our Bodies; it is the

Salt in the Sea Water whereby its Weight is increased, that makes it more useful in the Cure of those who are bit by a mad Dog; and the deeper you plunge them, the more effectual it will be, for a Reason that I have given before.

We know by Experience, that Cold contracts; and the more suddenly it is applied to our Bodies, the more violently it operates; but how much it contributes to the obtaining of the forementioned Ends, we cannot certainly know, having no Rule by which we may measure the Contraction caused by it.

But, that it is very considerable, we need not doubt, having so many Experiments to prove it. The Contraction of the Fibres is propagated throughout the whole Body, upon which score all the Humours in the Body must be propelled with greater Force through the Vessels in which they circulate; besides that the Tensity of the Fibres being greater, their Vibration will both be quicker and stronger, and that in proportion to their increased Tensity; so that the Blood and Spirits will not only move more swiftly through the Canals, but also be extremely ground and broken; from whence all the Effects of more fluid Blood and Spirits, moving with greater Velocity, will necessarily ensue upon using the cold Bath. These things which I have said, compared with the Constitution of the Patient, to whom Bathing is prescribed, will give you the Time he ought to stay in it, the Number of Times (with the Intervals between them) he ought to use it, the necessary Preparations for it, and what is to be done after it.

It is upon the Account of the contracting Power of the cold Bath principally, that it stops Hæmorrhages, Gonorrhœas, and the Fluor Albus, as also that it cures Venereal Impotency.

Where the peccant Matter hath been made more fluxil, either by Medicines, Diet, or a regular Use of the warm or temperate Bath, in chronical Rheumatisms, Gout, Sciatica, Lameness, &c. the violent contracting Power of the cold Bath will often perfect the Cure. A nervous Atrophy, which *Baglivi* probably conjectures to be owing to an universal Relaxation of the Nerves, which terminate in the Skin, is as likely to yield to the cold Bath as any other Method, provided the Pores, by Contraction, were not shut up too suddenly; for it would then throw the detained Matter upon some other Glands, whereby an Evacuation more dangerous might succeed.

The next Property of the Bath, distinct from its Weight and Coldness, depends upon its being moist; and by this Quality of the Water, it softens, relaxes, and makes pliable all the Parts of our Body, as sufficiently appears by steeping any Part of an animal Body in Water; even the Horns and Hoofs of Beasts will become soft and flexible, by a long Immersion in Water, especially if warm.

And that Water, as moist, hath a Property of relaxing, as 'tis proved by Experiment, so 'tis no way inconsistent with what I have said of the Pressure of Water in general, nor the contracting Force of the cold Bath in particular. The Pressure of the Water is consistent enough with relaxing and softening of Bodies that are immersed in it; for the Weight of the Water will enable it to insinuate itself into the Pores of the immersed Body, whereby it will become more soft and flexible; and yet, before it hath done this, will force together the Sides of any yielding Vessel, such as those of a human Body are, and thereby press out their Contents with a Velocity proportionable to the Weight incumbent on them; so that, after the Humours have been put in violent Motion by the Pressure of Bath Water, if the Person stay any considerable time in, he will have the solid Parts of his Body softened, relaxed, and made flexible. This Hint is of great Use to determine the Time our Patients ought to stay in the Bath in some Distempers more than others.

Now I shall inquire how the contracting Power of Cold, and the relaxing Power of Moisture, can agree in the same Subject. That they cannot act intensely at the same time, but their Actions will destroy the Effect one of another, is evident to any who consider, that contrary Qualities are inconsistent in the same Subject at the same time; but, as I observed in the last Section, Moisture acts very slowly, and must be a long time in performing its Work, whereas Cold acts quickly, and on a sudden, as we know by a Multitude of Experiments: Wherefore, though the cold Bath may contract at first, yet by staying too long in it, it would relax; but there are none who are able to bear the Cold so long as to produce the latter Effect. The principal Reason why Cold so violently contracts the Membranes of our Bodies, is by making an ungrateful Sensation; for such is the Frame and Constitution of the Animal Economy, that the Soul has a Power of contracting, or relaxing, the Membranes and Vessels of the Body, so as best to serve the Purposes of Life; and though we know not how the Soul operates upon the Body, yet would it be the greatest Folly to deny that which we daily experience to be true. We every Day observe, by the Command of our Wills, that the Members of our Bodies are moved a thousand different ways; and 'tis as easy to imagine the Soul acts immediately upon the Nerves, and other solid Parts of the Body, as upon the Animal Spirits, being that Spirit can act as easily upon solid Matter, as that which is fluid,

the Mode of its operating being altogether unknown to us. In a relaxed State the Body is weak, feeble and unactive, and in this Condition it is, in all the Passions which are attended with Pleasure: On the contrary, whatever Passions of the Mind are attended with Pain, Grief, or any kind of Uneasiness, as Malice, Revenge, Fear, a Fright, or Surprise, put the whole Body into a contracted State, as appears by the Shrinking of the Veins, Sparkling of the Eyes, Contraction of the Pupil, Paleness of the Face, and especially of the Lips; and this is none of the meanest Displays of infinite Wisdom and Goodness, for the Preservation of Man: For by this means he is strongest when he has the most Occasion for it, either in resisting Force when he thinks he can overcome it, or else in flying from it; in doing of which upon a Fright, some have exerted such Agility of Body as is almost past Credit, were it not the common Observation of Mankind, how vigorous and active we are in such Circumstances. The Reason of this excessive Strength, when the Vessels of the Body are contracted, is evident from Dr. *Cheyne's* Proposition about the Strength of Animals, that is, "That 'tis in a triplicate Proportion to the Quantity of Blood running in the Vessels." Now the Quantity of Blood is mightily increased, in the Proportion it bears to its Vessels, when they are contracted, to what it is when relaxed; for 'tis the same thing to all Intents and Purposes, whether the Vessels continue of the same Wideness, and the Quantity of Blood be increased, or the Quantity of Blood continue the same, and the Vessels in which it runs be straitened or contracted; so that we may expect the same Strength in an Animal whose Vessels are contracted to half their Wideness, as we may from an Animal whose Vessels are in their former Condition, and the Quantity of his Blood doubled; so that besides the Advantages common to all Sorts of Bathing, there is this peculiar in the cold Bath, that it gives a violent and universal Contraction to all the Membranes and Vessels of the Body, and there is nothing so surprising in the sudden Cures it performs, but what is accountable for from this Cause.

But Water hath certainly a softening, relaxing Property, when applied to our Bodies; and by means of this 'tis able to bring about great Alterations; and as the Pressure of the Water is made more effectual by Cold, so is its relaxing Power by a moderate Warmth: For a gentle Heat always relaxes the Fibres of our Body, by being pleasing and agreeable to the Sense of Feeling: So that when we would have the Benefit of an universal Relaxation, we ought to go into the temperate Bath, such as *Buxton*, being the most temperate of any that I know of in *England*. The first Advantage that many receive from the Use of this Bath, is an entire Refreshment after Weariness with a Journey. 'Tis a common Custom for Persons wearied with Riding, as soon as they alight, to go into the Bath for a little time, by which means they become as lively and brisk as they were in the Morning; for Weariness being nothing but an overstretching, or too great a Tensity, of the Fibres, occasioned by using them too long, or too violently, multi. upon then being relaxed, go off again: 'Tis for the same Reason that Sleep takes off Weariness.

This universal Relaxation caused by Bathing will so widen the Pores, that a vast Quantity of perspirable Matter will be carried off, more than at another time. 'Tis for this Reason, that some corpulent People have, in a Fortnight's time, lost above two Stone Weight by using of this Bath; and all the Advantages of a free Perspiration may be gained this way; tho' it be true, we are more obnoxious to catch Cold afterwards: Yet I think a cautious Use of the cold Bath after the hot, might not only prevent that Inconveniency, but, in many Cases, render it much more beneficial. I have known that Bath I am speaking of, to remove violent Pains in the Head, Back, and Joints. A Gentleman of my Acquaintance had a fixed Pain in his Breast for almost two Years, and was relieved by four or five times Bathing in this Bath. It helps a chronical Rheumatism, Gout, and the Colic, Lameness, Contraction of the Tendons, &c. and how all these are performed, is easily known by the foregoing Theory. But, all the Effects of warm Bathing are better brought about by the Water insinuating itself into the Body through the Skin; for being mixed with the Blood, it dilutes and dissolves the acid Salts in the Serum, by which they are better carried off through the proper Glands designed for their Evacuation: So that 'tis useful in all Distempers where too much Salt abounds, as the Scurvy, and most cutaneous Diseases.

Though it be a generally received Notion, that Bath Water enters into the Body, and so mixes itself with the Blood, yet most believe it upon very indifferent Grounds, or having never examined the Reason of the Thing, nor considered the Objections against it. That Water hath a wonderful Power of insinuating itself into any contiguous Body, appears from several Experiments. We see how Deal Boards will swell against rainy Weather; the watery Particles floating in the Air, by the Pressure of the Air upon them, are forced into the slender Tubes of the Wood, where they meet with no Resistance, the Particles of Air being too large to enter the same. It is certain,

however true the contrary may appear to be, that the compounding Particles of Water are less than those of Air, because the former will pass through several Bodies that the other will not. It will force itself through the Skins of Animals, even after they are dried, and converted into Leather. *Bellini* tried the Experiment upon the Skin of a Man's Head, which, after it was moderately dried, he suspended with a Stone in it, to sink it in the Water, and in a few Hours time the Water had forced its Passage through it. But nothing shews more the Force of Water to enter into contiguous Bodies than the following Experiment.

Fasten a Piece of Whip-cord, or a strong Rope, of what Length you please, (but the longer, the more visible will the Experiment be) to a Hook or Staple, and at the Bottom of the Cord hang any Weight, short of what will break it, though never so great; you will find, that the Weight will rise in moist Weather, and sink lower in the dry: You may also raise the Weight by moistening the Sides of the Cord by a wet Sponge; by this means a few Particles of Water may overcome any finite Resistance, if the Cord would bear it. Now, since there is but a little Quantity of Water, and that driven into the Sides of the Cord, with a Force no greater than the Weight of a Cylinder of Air incumbent upon the Water; therefore must the Water act by some Property whereby its Force is greatly augmented, and that can be no other than that of the *Cuneus*; and the Forces of Wedges are to one another reciprocally proportional to the Angles their Edges make; but in Spheres the greater or lesser Degree of Curvity is to be considered as their Angles, when Spheres are considered as Wedges, and the Degrees of Curvity in Spheres are reciprocally as their Radii. Now the Particles of Water, being so infinitely small, less by much than those of Air, must, when acting as Wedges, have their Powers infinitely increased, so as to overcome any finite Resistance: Now let the Resistance the Water meets with, in entering into our Bodies, be what it will, yet 'tis hard to believe it is greater than what I have mentioned, which yet a little Quantity of Water will overcome. The Experiments I have taken Notice of were made upon the Skins of dead Men, or Beasts, which would have put the Matter beyond Dispute, had they been made upon such as were alive. The only Difference then being, that, in the Living, Steams or Vapours are constantly raised into the Air, through the Pores of the Skin, in insensible Perspiration, which is not so in those that are Dead, these Vapours, though raised with a considerable Force, are yet unable to withstand the Impetus, with which Water endeavours to insinuate itself into contiguous Bodies, being so great as I have explained. And though the Quantity of perspirable Matter is very great in twenty-four Hours, being five Eighths of the Meat and Drink a Man takes in a Day; yet, if we compute the Quantity that perspires from any Part of the Skin, in a given Time, we shall find it too little by far to hinder the Entrance of Water into the Body, when we go into a Bath. For Dr. *Pitcairn* hath demonstrated, that the Matter of insensible Perspiration in a Minute, is the 1200 Part of the Place it comes from, that is, one Scruple of the Skin perspires $\frac{1}{1200}$ Part of a Scruple in a Minute, and consequently one Dram of the Skin perspires $\frac{1}{1200}$ Part of a Dram in a Minute. Now, suppose a square Inch of the Skin weigh one Dram, then a square Inch perspires $\frac{1}{1200}$ Part of a Dram in a Minute; but a square Inch of the Skin is pressed upon by a Weight when we bathe, more than in the open Air, equal to ninety-six Drams. For we may conclude, that our Bodies, taking one Part with another, are two Feet under Water when we bathe ourselves; so that every square Inch of our Skin must bear the Weight of twenty-four cubical Inches of Water equal to ninety-six Drams; for a cubical Inch of Water being four Drams $\frac{1}{4}$, throwing away the Fraction, twenty-four cubical Inches must be ninety-six Drams. Now since only the $\frac{1}{1200}$ Part of a Dram of Matter is perspired through a square Inch of the Skin in a Minute, therefore is the Elevation of the perspirable Matter resisted by a Weight 115200 times greater than itself; for $1200 \times 96 = 115200$. How great then must be the Celerity with which the perspirable Matter moves, if we imagine it able to raise a Body 115200 times heavier than itself? Thus would it be, if the whole Quantity of perspirable Matter, evacuated in a Minute, was to exert its Force at once upon the incumbent Weight of Water; but it is so far from doing that, that if the Exhalation of the Steams be not continual, as the Pressure of the Water is, yet the Intervals betwixt the Times they are propell'd from the Body are very short; suppose sixty of them in a Minute, being about the Number of Pulses that a healthful Man's Artery beats in the same time; then will the Quantity of Vapour, which exerts its Force at once against the incumbent Water, be sixty times less than what I first assigned; which being multiplied by $1200 = 72000$, the Number of Parts into which a Dram of perspirable Matter is divided, one Part only of which exerts its Force against ninety-six Drams of Water in a Second; so that the perspirable Matter that rises, every Second must raise a Weight 6912000 times greater than itself, if it resist the Entrance of the incumbent

bent Water; for ninety, the Number of Drams of Water, incumbent upon an Inch square on the Skin, multiplied by 72000, the Number of Parts into which a Dram of perspirable Matter is divided, is = 6912000, the Difference between the Quantity of Matter perspired in a Second, and the Quantity of Water by which its Motion is resisted.

I think by this time it sufficiently appears, that the Bath Water will mix itself with the Humours of the Body; so that there is nothing so wonderful in Bathing, but what may be accounted for from some of these Properties of Water I have mentioned, without having recourse to the Salts with which Bath Waters are impregnated, which yet may contribute their Share in the Cure of some Distempers. What I have said about Bathing, as 'tis mostly new, so are my Reasons founded upon known Experiments; and how just my Inferences from them are, I leave to the Judgment of my Reader (supposing him to have the necessary Qualifications, and a moderate Attention) to determine. *Wainwright*.

Dr. *Wainwright* has left me very little to say on the Subject of Bathing. I shall only farther remark, with respect to cold Bathing, that as Cold contracts the Vessels of the Body, the Solids act with more Vigour upon the Fluids, which contributes to the Attenuation of the latter; the Attrition betwixt the Solids and Fluids is also increased, and thence a Person feels himself warm, when he comes out of a cold Bath. In Consequence also of an increased Action of the Solids upon the Fluids, the Circulation is accelerated, and for this Reason all the Secretions are increased, amongst which are Sweat, Perspiration, and Urine.

But in order to the Production of these salutary Effects, we must suppose a certain Degree of Elasticity, or Power of Contraction in the Animal Fibres; otherwise, the cold Water will refrigerate, and consequently coagulate in some Degree the Juices, without adding any new Force to the Solids, in order to promote their Attenuation. Hence, in Cases attended with a certain Degree of Relaxation and Debility, a cold Bath should seem to be certain Death.

I believe all Physicians, who attend any considerable Number of Patients, frequently hear some of them complain of erratic Pains about the Breast, which reside in the Muscles, though I have sometimes known them mistaken so far as to be esteemed internal, and consider'd as proceeding from the Lungs; and it is possible, that a Sensation of Weight on the Breast, and a certain Difficulty of Breathing, tho' in a small Degree, may have laid the Foundation for this Error. I take the Liberty of recommending, in these Cases, from my own Experience, the cold Bath, as the most effectual Remedy I am acquainted with. It should be used about every other Day, for a few Weeks; and the Patient should only just immerse himself under Water, and immediately come out again, and repeat this two or three times. When the Disorder is removed, the Remedy should be laid aside. And indeed, in all Cases, great Care should be taken not to make the cold Bath so habitual, as to render its continual Use absolutely necessary. This Caution is of equal Force with respect to all Remedies of Importance, especially Opium, and the Bark, by the incautious and unnecessarily continued Use of which, many Constitutions have been utterly destroyed.

Lastly, it has been remarked, that in Disorders of the Lungs, where there is a Tendency to a Consumption, cold Bathing is noxious, as it accelerates the Inflammation of the Tubercles formed in the Lungs, and the consequent Suppuration.

Willis, in his Treatise on a Phrenitis, gives a very remarkable Case of a Girl who was cur'd of this Distemper by Immersion into cold Water, which deserves to be taken Notice of.

Some time ago, says he, I was called to the Relief of a robust and vigorous Servant Maid, who being seized with a Fever, became so furious and mad, that there was a Necessity for keeping her continually bound in Bed. I took a large Quantity of Blood from her at two different times, rendered her Body soluble by repeated Clysters, and prescribed her such other Remedies as are usually exhibited in Cases of a like Nature. I also ordered, that she should have Juleps, Emulsions, and hypnotic Draughts. But all these were of little or no Service to her; for she remain'd without Sleep, and very furious, for the Space of seven or eight Days, crying and roaring incessantly for some cold Liquor to drink; for which Reason she was allowed as much Water as she pleased; but was neither rendered more calm, nor less thirsty, by that means. As it was the Summer-time, I ordered her to be taken up in the Middle of the Night by Women, and carried to a Boat, where her Cloaths being taken off, and the Cords, with which she was bound, untied, she was plunged in a deep River, having previously tied a Rope about the Trunk of her Body, lest she should happen to be drowned. But there was no Occasion for this Expedient; for the Girl naturally swam with so much Dexterity, that a Man who is very expert in that Exercise, could have scarce acted his Part better. About twenty or fifteen Minutes after, she was taken out of the Water, sober and in her Senses. Upon which, being laid in Bed, she slept, fell in-

VOL. I.

to a plentiful Sweat, and was thoroughly recovered without the Use of any other Remedy whatever. This Cure succeeded so happily, and so suddenly, because the Excesses of the vital and animal Heat, which were both highly increased at one and the same time, were removed by a Remedy proper for intense and burning Heats, that is, Humectation and Refrigeration by Water. *Willis de Delirio & Phrenitide*.

In Confirmation of the Truth of this History, I must relate one which was told me by the late Sir *John Floyer*, and a Lady of Honour and Veracity, who was a more immediate Witness of the Fact than Sir *John*, though he attended the Woman, whose Case is the Subject of this History.

Sir *John* was called to a Farmer's Wife at a Village about four Miles from *Lichfield*, who was ill of a Fever, attended with a Delirium, and an utter Privation of Sleep. It happened one Night, that the Patient lay for a little time pretty still, and the Nurse took that Opportunity of going softly out of the Room for a few Minutes, upon some necessary Occasion. When she return'd, she found all still and quiet, and sat down by the Bed-side for at least a quarter of an Hour; but observing, that she did not hear the Woman breathe, she put back the Curtains, suspecting she was dead; but was much surprised to find she was not in Bed. After searching the Room to no Purpose, she alarmed the People in the House, who, after some time, found the Woman in the Yard up to the Chin in Water, in the Well, which was, as is usual in that Country, not much above five Feet deep, and near full of Water. The Woman was instantly taken out, and put to Bed, and immediately fell asleep. Soon after, a profuse Sweat broke out, which continued for many Hours. She awaked without any Delirium, and recovered without any farther Trouble.

The Chymists have applied the Word *BALNEUM* to several things relative to their Art. Thus the old Chymists mention a *BALNEUM ARENÆ*, or Sand Heat, for the Purification of Mercury.

BALNEUM MARIÆ, or *MARIS*, as it is sometimes written, imports the Heat of boiling Water. In this Encheiræsis, the Vessel containing the Ingredients to be distilled, digested, or acted upon, is put into a Vessel of Water, which is made to boil, so that no greater a Heat than that of boiling Water, can be communicated to the Substance to be treated.

It is customary with the Chymists to give grand and sounding Names to all the Instruments used, and Phenomena occurring, in their Art. Thus *Explosion*, with the Vulgar, is, with them, *Fulmination*; and the Heat of boiling Water, is *The Bath of the Blessed Virgin Mary*.

BALNEUM SICCUM, or a dry Bath, is, when Sand, Ashes, or Filings of Steel, are heated, and the Vessel, containing the Substances to be acted upon, is placed therein.

BALNEUM VAPORIS, a Vapour Bath, imports the Heat of the Vapour, or Steam of Water.

As some Account of the *Bath Waters* may be expected from me under this Article, I shall give it in the Words of Dr. *Cheyne*, because it is much the most distinct I have met with.

Of BATH WATERS.

The Learned have been divided, and much perplexed, about the Heat of *Bath Waters*. I have always endeavour'd to account to myself for it, from the common Experiment of mixing Filings of Steel, and Powder of Sulphur, working them into a Paste with Water, and putting them into a Cellar, under a Cock, dropping Water slowly and regularly; the Paste will ferment to such a Degree, that the Water running from it shall be of the same Heat and Virtue with the *Bath Waters*, though not so pleasant, nor so well fitted to human Bodies. This is a common Experiment, and these are the only natural Bodies known, which, meeting together, will produce Heat in Water, without artificial Fires. *Tournefort* says, " 'Tis certain, that Filings of Iron, steep'd in common Water, will grow considerably warm, and much more so in Sea Water: And if you mingle therewith some Sulphur powdered, you will see this Mixture really burn." Sir *Isaac Newton*, in his last Edition of his *Optics*, p. 354, says, " That even the gross Body of Sulphur powdered, and with an equal Weight of Iron Filings, and a little Water made into a Paste, acts up- on the Iron; and in five or six Hours grows too hot to be touched, and emits a Flame." That the Heat of the *Bath Waters* is owing to a Principle within themselves, is evident, from their retaining it longer than any other Water, heated to the same Degree, will. Wherefore there can be no Necessity of having recourse to Vulcanos, or subterraneous Fires, to account for this Appearance. There are no burning Mountains known in this our Northern Climate; and 'tis pretty hard to conceive, how Fires should have burned so long under Ground without a Vent, or any other remarkable Sign. The Sulphur in the *Bath Waters* is evident to the Senses, swimming in large Clusters on the Tops of the Baths mixed with Earth, and some mineral Substances, where with the Guides commonly gild Silver; and is found an excellent Remedy in Scouries, Leprosies, Ringworms, and other Foulness of the Skin. The Steel is manifested

by the bluish Tincture given to the Water from the Pump, by an Infusion of Nut-gall. It is true, this Tincture is neither so deep, nor is it to be had from the Water, in any short time after it comes hot from the Pump, thereby to manifest any great Quantity of Steel in the Composition, such as can have the full Proportion to the Experiment now mentioned. But, to set this in a clearer Light, let us put together these Considerations: First, that upon Distillation of *Bath* Water, there remains little in the Bottom of the Glass but the common Calx, or Sea Salt, that is found in the Distillation of Spring Water, if we except some Sand or Earth, that is forced up by the Violence of the Pump; wherefore the *Bath* Waters not being impregnated with any Quantity of a saline Mixture, can retain nothing in their own proper Substance but the lightest Parts of the Steel and Sulphur. Secondly, that this Water is as fully impregnated with Sulphur, as it can bear. And that there must be a greater Proportion of Steel in *Bath* Water than is manifested to the Senses, or discovered by any Experiment hitherto made, is evident from its healing Effects, which no known Medicine but Steel can bring about, or account for. None but those who have seen it, can believe the wonderful Efficacy it has, in most chronical Cases. What but Steel, in a few Weeks, can make the Blood, from a white bluish, or tallow Hue, resisting the Knife, like Glew, swimming in its Serum, like an Island amidst the Ocean, look all of a Piece, of a scarlet Colour, and a due Proportion between its nourishing and its watery Parts? Nothing but Steel can make a pale ash-coloured Countenance, hollow and deep Eyes, no Appetite, little Strength, and less Sleep, eat and drink, and sleep, look gay and sleek, like the best Health. Thousands of such Instances may be seen every Season at these healthful Springs. Thirdly, the Effect of Sulphur in bridling the sensible Appearances and Operations of most active Medicines, is very well known. Instances of which, in natural Bodies, are Antimony, and Native Cinnabar; in artificial ones, *Aethiops Mineral*, and Cinnabar of Antimony; in all which the Mercury is so bridled up by the Sulphur, that none of their sensible Operations and Appearances are felt, while they produce the most wonderful Changes on Animal Bodies.

Since the *Bath* Waters derive their Heat from a Principle within themselves; since no natural Body, but Sulphur and Iron, can produce such a Degree of Heat, as is in them; since nothing but Steel can produce those wonderful Cures on human Bodies, which *Bath* Waters do; since Sulphur will lock up and bridle the sensible Appearances and Effects of the most active Bodies, and yet not destroy their healthful and medicinal Virtues; it is plain, that *Bath* Waters must owe their Heat to a Mixture of feely and sulphureous Particles, and their healthful Effects to a greater Proportion of Steel, than is sensible, or easily discoverable by any Experiment hitherto made, join'd to a light Sulphur, whose Virtues and Efficacy in all chronical Cases we have already shewn. The Mountains which surround the Place, which every body now knows to be but the Nests of Minerals, and the Receptacles of the Waters, which feed the Springs, (which Mountains are continued even to the Sea) confirm this Opinion.

All hot Waters seem chiefly to consist of these two Principles, and to differ only as the Sulphur or Steel predominates in them. Where the Sulphur predominates, they are hotter, more nauseous, and more purgative. Of the three hot *European* Waters of Note, the *Aix la Chapelle*, *Bouhon*, and *Bath*, the full abounds more eminently in Sulphur, which makes its Heat, Nauseousness, and purgative Faculty, so great, that few weak Stomachs can bear its Heat and Nauseousness, and fewer weak Constitutions the Violence of its Purgings. The *Bouhon* are of a middle Nature between the *Aix la Chapelle* and the *Bath* Waters, and are less hot, nauseous, and purgative, than the *Aix la Chapelle*, but more than the *Bath* Waters. The *Bath* partake less of the Sulphur, and more of the Steel, than either of these two, and are by far the most pleasant, of a milky Taste, never purge, except they be drank either too fast, or in too great Quantities, and always mend the Appetite, and raise the Spirits. The weakest hot Waters are but of little Use, except in the lowest Cases, and hectic or consumptive Constitutions; but, for Medicinal Uses, the weaker hot Waters may be made pretty near equal to the stronger by Evaporation, as to the sulphureous Principle; as the stronger may be brought down to the weaker by Dilution, as I have experienced, tho' Nature be always the wisest and most perfect Operator. But neither the same Proportion of Steel, nor Sulphur, nor Heat, indifferently fit all Constitutions. Generally the Strength (that is, the Quantity of Steel and Sulphur) of the same hot Waters, is in proportion to their Heat; and therefore, to fit the same Waters to weaker Constitutions, they need only be drank proportionably cooler.

The *Bath* Waters having such an Origin, and such Qualities, must needs be an excellent Remedy in the Gout, and other chronical Cases, for those Reasons: (1.) Because of their Warmth, just suited to the Wants of Nature, and a little above the Heat of human Bodies, sufficient to introduce a foreign

Warmth and Motion to cold and decayed Bowels and Fluids, whereby the natural Warmth, and slow Circulation, is increased and enlivened. (2.) This, with its agreeable Taste, and milky Softness, makes it fit so easily on the Stomach, and become so excellent a Vehicle, to wash into the Blood other proper and specific Medicines without that Nauseousness, and Fret on the Spirits, which all other hot Waters, hitherto known, or that Chilliness and Damp, which all cold Mineral Waters give, whereby they are rendered useless or hurtful in some low and nervous Cases. To these add, (3.) Their chalybeate Principle, so peculiarly locked up in Sulphur, that the Patient reaps all the Benefit, and healthful Effects, of the best Preparations of this Medicine, (and what are not two such powerful Medicines, combined, able to effect?) without the nauseous Taste, and frequent Disorders upon the Stomach, that every other way of giving Steel produces. (4.) The Sulphur, united with the Steel, makes it a natural kind of Soap, for cleansing the Insides of Vessels from the Foulness that cleaves to them, and for opening the Obstructions of the small Vessels. But, (5.) That which, together with the others, makes it specific in the Gout, is, its relaxing Quality, whereby it softens and supples the rigid and stiff Fibres, so as the gouty Humours may pass freely by Perspiration. Much more might be said of this wonderful Remedy provided by the Hand of Nature, to relieve the Miseries of human Life; but this the innumerable Crouds of Cripples of all Sorts, and those other Persons made miserable by chronical Distempers, sent thence every Year, cured or relieved, do witness more convincingly, than either Philosophy or Rhetoric can.

It is capable of Demonstration, that the Force, Pressure, and Weight of the *Bath* Waters in Bathing, are sufficient to counteract the Force of the Perspiration some Millions of times; and consequently, that these Waters, relaxing the Fibres of all the Vessels, and soaking through the Scarf-skin, and even thro' the Coats of the small Vessels, are introduced into the smallest Glands, and convey'd by the returning Veins into the Mass of the Blood, and, by the Force of the Circulation, assist in opening Obstructions through the whole Habit; and this accounts for the wonderful Efficacy of Bathing in white Swellings, Palsies, scorbutic Drynesses of the Skin, scrophulous Sores and Tumors, nervous Wastings of the Limbs, sciatic Pains of the Joints, cold Rheumatisms, and Weaknesses after the Gout. And this still will be more evident, if the Doctrine of the Attraction of Animal Bodies on the incumbent Atmosphere, lately so much improv'd by Dr. *James Keil*, be supposed true. It is many Years since I was informed by a Gentleman of great Ingenuity, that having a good deal of Money on a Horse, which was to run for the Plate at *New-market*, and the Rider dying not many Days before the Time appointed for the Course, he had undertaken to ride himself, and was obliged by Fasting, Watching, and Exercise, to bring down his Body to Horseman's Weight; that after the Match was over, and he exactly weighed at the Post, he had rode immediately home; and having drank up a Pint of Chicken Broth only, which might weigh about a Pound, got to Bed, and slept twelve Hours; and weighing again under the same Circumstances as before, found he had got in the Whole about three Pounds, if I remember right; whereby he concluded, that his exhausted Body had drawn in about two Pounds of the circumambient Air. This more manifestly shews, how the *Bath* Waters, being hot, and consequently more active, may be drawn in, and get thro' the Pores of the Skin into the Blood-vessels, and there concur with what is drank down towards those kindly Effects Bathing commonly produces. And 'tis impossible to account for those copious and profuse Sweats Persons (if they lie long in Bed after Bathing) run into, but that their Bodies are filled with these Waters, like a soaked Sponge. But the Weak and Low-spirited are never to be suffered to run into those; which are prevented, by either not going into, or by being only a short time in Bed.

It is somewhat uncommon, that Bathing, which for many hundred Years has wrought such Cures, as we have on Record, and singly maintain'd so long the Credit and Reputation of *Bath*, should for this last Century (in which only drinking the Waters has been in Use) have fallen into such Disgrace, that it is very far from being now the chief thing People come to *Bath* for. Before drinking the *Bath* Water came to be so much used, fixed or wandering Pain, Stiffness, or Contractions on the Tendons, Lameness, or wasted Limbs, Palsies, or Rheumatisms, were the chief Distempers People came to *Bath* for. But now, since all other chronical Distempers whatsoever are relieved either by bathing or drinking, if People will bathe indifferently, without Advice, without duly preparing their Bodies, and cleansing the alimentary Passages, without any distinct Knowledge of their Case, their Strength, the proper Season of Bathing, or the Time they ought to stay in at once; there must necessarily happen (as there have happen'd) unlucky Accidents, which tend to discourage and disgrace Bathing in general. On the other hand, if those who attend on Bathing will undertake more than they can manage, or duly tend,

tend, at one time ; some must necessarily be kept in longer than their Strength will suffer, or their Case requires. These have been the Sources of the late Neglect and Contempt of Bathing. But I am well satisfy'd, was Bathing managed prudently and discreetly, there are but few chronical Cases, in which it might not be useful, and in which it might not contribute with Drinking, and other proper Remedies, towards a Cure, or a Relief. If, on the one Side, we do but consider of what Use and Reputation hot Bathing was amongst the antient *Romans*, and to what extravagant Expences they ran to make their Baths convenient, or beautiful : If we consider, that most chronical Distempers are attended with want of due Perspiration, and are therefore generally of the cold and phlegmatic Kind, and are always produced by Obstructions from stazy Juices : On the other hand, if we reflect on what was hinted above, that the hot Water, in Bathing, was sucked in, and attracted through the Skin, into the returning Veins, and was thereby put in a Capacity to assist with what is drank down, to wash off Obstructions of the small Vessels, to thin and dilute the Blood, and glandular Juices, to warm, enliven, actuate, and nourish, the wasted and decayed Parts : We shall readily conclude, that Bathing, prudently managed, may be extremely beneficial in most chronical Distempers. That Bathing therefore may be performed in the best manner possible, we must first distinguish those Distempers which might suffer by it, from those which will be benefited by it. And those are chiefly of three Kinds : (1.) Those Distempers which impair the rational Faculties, or affect the Head with Pain or Giddiness. Because hot Bathing might send Fumes or Vapours upwards, and so increase these Distempers ; such are hysteric Disorders, Convulsions, Epilepsies, and the like. While the Fit lasts, a Vertigo, or Head-ach, from a foul Stomach. (2.) Those which any ways affect the Lungs, because hot Bathing, increasing the Velocity of the Blood, may occasion a Pleurisy, or Peripneumonia, or a Spitting of Blood in such Cases. (3.) Those which are attended with Inflammations, moveable Tumors, or with sitting Pains, such as the Gout, or an inflammatory Rheumatism ; because hot Bathing may increase the first, or translate the latter. These excepted, I know no chronical Case (but when in their last Extremities) which might not be benefited by moderate and discreet Bathing, which might scour the foul Tubes, open the obstructed ones, increase the natural Heat, and encourage a due Perspiration. I shall conclude with subjoining a general Rule, whereby to know, if, on Trial, Bathing agrees, and has not been continu'd too long in the Whole, or each single Time ; that is, if it neither sink the Spirits, waste the Strength, nor weaken the Appetite, then it is certainly beneficial ; for hot Bathing being of the Class of Evacuants, if it carry nothing off but faulty Humours, it can produce none of the mentioned Effects ; and if it evacuate these, it must needs be beneficial ; and, on the contrary, if it spend the nourishing Juices, and carry off more than the Party can well spare, it must be hurtful.

It is observable, from *Guidot's* Experiments on *Bath Waters*, That the Water, either exposed to the common and open Air, or cork'd up and seal'd in a Bottle, did, for a much longer time, retain its Virtue of tincturing a purplish Blue with Nut-gall in clear frosty Weather, than in heavy moist Weather ; that is, it retain'd its chalybeate Principle much longer in frosty and clear Weather, than in warm and moist Weather. The Truth is, nobody could have been long at *Bath* but must have observed, that the Water succeeded better, quicken'd the Appetite more, made the Digestions stronger, and raised the Spirits higher, in a clear, quick, dry Season, than in moist, warm, heavy Weather ; and, in Fact, in such a Season as this first is, they surpass all the Methods of producing such an Effect I have ever seen. To which two Causes concur, the greater Quantity of a subtle, active, chalybeate Principle preserved in the Water, and the greater Tightness and Firmness produced in the Fibres by the cold, clean, dry Weather : But what I would chiefly observe from the mention'd Experiments is, that the chalybeate Principle is so fine, subtle, and active, that, in a few Hours, nay Minutes, it will evaporate thro' a Cork, and seal'd Glass-bottle ; and may retain, by the mere Action of the circumambient Air, its Nitre, and different Gravity, for some considerable Time : Which shews, how this so subtle and volatile a chalybeate Medicine may be convey'd from the Stomach, even to the great and complicated Distance of the most minute Nerve, the most readily and quickly ; which the elementary Water, thus actuated, reaches much sooner than any artificial Preparation of Steel possibly can ; and thereby becomes so admirable a Medicine in relax'd Nerves, and nervous Distempers ; to which the *Bath Waters*, actuated by this subtle, penetrating, and powerful chalybeate Principle, concur inwardly in drinking them, and outwardly in Bathing, by their being drawn in thro' the Skin, into the small Vessels, as may be seen in the preceding Articles about Bathing. As to the small Quantity of Steel thus introduced, it seems generally sufficient for the real Wants of Nature ; but, in chronical Diseases, may be easily supply'd by larger Doses of artificial Steel, when the other has prepared

the way : And certainly, in giving both Steel and Pitters, 'tis safest, and most prudent, to begin low, and with smaller Doses ; and to rise as the Pulse and Strength rises, and as Usage has made smaller Doses less effectual. I remember to have observ'd in some of the great and sagacious Dr. *Radcliff's* Bills, four or five Drops of *Mynsicht's* Tincture of Steel, with a few Drops of Elixir Proprietatis, in a simple Water, prescribed as a chalybeate Bitter, even to grown Persons. This I freely own, in the Novitiate of my Observations, I thought very simple : I have had good Reason to condemn my rash Judgment since, and to acknowledge it prudent and judicious to begin, in some low Cases, with such small Doses.

The other Difficulty is, how the same hot Water should relax contracted Fibres, as in the Gout and Rheumatism, and yet contract and brace relax'd Fibres, as in the Palsy and wasted Limbs. That the Matter of Fact is so, is past all doubt, in these and many other Cases of Contraction and Relaxation : But to clear up this, we need only to consider what Contraction and Relaxation are. Since all the Fluids of the Body are contain'd in Vessels, Contraction can arise from nothing but from the Blood, and other Fluids, (or whatever is the Cause of muscular Motion) their being retain'd and obstructed by their Sickness ; or from some external Injury in the Substance of the Muscle itself, whereby it becomes stiffer and firmer, and so acts as upon its Office of Contraction. Relaxation, on the other hand, is an Obstruction of the Nerves or Vessels of the Fluids, before they arrive at the Muscles, as is seen in Palsies, and the nervous Atrophy of the Limbs ; so that, in both Cases, Obstructions are the Cause both of Contraction and Relaxation. Wherefore, whatever Medicine can dissolve the Sickness of the Fluids, open the Obstructions of the small Vessels, make the Perspiration full and free, and brace the Fibres, will both contract Relaxations, and relax Contractions ; and that these are some of the Effects of *Bath Waters*, has, I think, been made sufficiently appear.

If it be inquired into, what other Cases, besides the Gout, *Bath Waters* may be useful in, the Answer will be obvious from the Account now laid down ; that is, That they must be beneficial in all Cases, where Steel or Sulphur is ; that is, in almost all chronical Cases whatsoever. In acute and inflammatory Cases, in all Cases attended with a strong quick Pulse, no mineral Water, nor chalybeate Medicine, can be proper ; but in all other Cases (excepting those only attended with a Bleeding or Hæmorrhage) they are not only safe, but exceedingly beneficial : More particularly, their wonderful Efficacy has been often experienced in Cachexies, Scurvies ; in the Stone, Rheumatism, and Jaundice ; in Hypochondriacal and Hysterial Affections ; in Vapours and Melancholy ; in Palsies, Epilepsies, and other Cephalic and Nervous Distempers ; in Disorders of the Stomach and Bowels ; Obstructions of the Liver and Gall-bladder ; in Green and Breeding Sickness ; in Barrenness, and Weakness after Child-birth ; in Obstructions of the monthly Purgations, and all other peculiar Diseases of the Sex. And truly, if a Person afflicted with a low, broken, or tender Constitution, suffering under the tedious Pains and Inquietudes of any of the lingering Distempers now mention'd, where the Viscera or Bowels are yet sound, would know the fittest Place in *Britain* to spend their Life-time with the greatest Ease and Pleasure ; take all the Advantages of the Place together, the Agreeableness of the Waters to the Stomach, the Certainty of their procuring a good Appetite, when it fails ; and the no less certain Consequence thereupon, Freedom and Cheerfulness of Spirits ; the regular Way of Living ; the Excellency of the Provisions ; the Warmness, Cleanness, and Neatness of the Housing ; the Convenience of the free, fresh, and open Air of the neighbouring Downs for Exercise ; the Easiness of the Amusements ; and the Advantage of what Conversation one desires ; I say, taking all these Advantages together, I can affirm, from near twenty Years Experience, without Suspicion of Flattery, or Fear of Contradiction, that *Bath* is the Place.

Some wise and frugal People think the mere Drinking of these Waters, for some Time, without taking any Medicine, either before or with them, may be sufficient to remove any of the chronical Ails they are good for ; but those, if they are really ill in any other manner, except mere Loss of Appetite, are generally convinced, upon Trial, at their own Expence, that they neither ought to begin a Course of the *Bath Waters*, without a previous Cleansing of the Stomach and Bowels, lest they wash into the Blood thro' the Lacteals, by the perpetual Dilution of the *Bath Waters*, those Impurities which constantly cleave to them ; nor that they ought to expect a perfect Cure of a long-breeding and lingering Distemper, without the Assistance of those other Medicines which are reckon'd specific in the Case, and to which the *Bath Waters* are so pleasant and so assidant a Vehicle : For it is but Prudence to bring all the Forces one can raise, against so potent and so formidable an Enemy as a chronical Distemper.

It is not possible to lay down a general Rule, about the Quantity of *Bath Waters* which it is convenient to drink daily, that being to be varied according to some Circumstances of the Patient,

Patient, and the Nature of the Distemper. Strong, full, and large Bodies, bear more Water than tender, thin, and lesser ones; the Younger more than the Elder; those of strong and firm, than those of weak and relax'd Nerves; those who labour under the Gravel and Rheumatism, than those who are disorder'd in the Alimentary Passages, or are subject to scorbutic or nervous Weaknesses, and the like. But, in general, it were to be wish'd, that People, who come to *Bath* for their Healths, drank less daily than they commonly do, and allow'd more Time for a chronical Distemper. I think it may be safely advanced, that any Quantity greater than an *English* Quart in a Morning, drank in two Hours time, half a Pint every half Hour, is more than what is reasonable: For, drinking in this Proportion all the rest of the Day, at Meals, that is, in the Afternoon, and going to Bed, they must take down no less than five Pounds in about sixteen Hours, *viz.* two Pounds in the Morning, a Pint and an half with Wine at Dinner, half a Pound in the Afternoon, and as much at Supper, and at going to Bed. This, every body must see, is fully sufficient to answer all the Intentions of drinking mineral Waters. A greater Quantity than this will serve only to distend and relax the Alimentary Passages, to force its Way thro' the largest and most patent Tubes, and to propagate the Circulation through the Branches and Inoculations of the larger Arteries and Veins, where the least Foulness, and fewest Obstructions, can happen; so that it will scarce ever reach the finest Capillary Vessels, in which alone the Danger lies. And the late ingenious and learned Dr. *James Keil* has made it evident, that the most expeditious way of altering the whole Mass of the Blood, by mineral Waters, is by small and frequent Draughts. In most Cases a Pint in a Morning is sufficient; and in low Constitutions, and Disorders in the Alimentary Passages, tending to Vomiting and Purging, half a Pint is enough; and whatever Quantity is to be drank, 'tis always best to take it in small Quantities, and at good Distances, provided it come within the Compass of the Morning. What is drank at Meals, tho' cold, yet being fresh, and not altogether drain'd of its Principles and Virtues, contributes near as much to the Cure, as that which is taken in the Morning. The Afternoon and Evening's Draughts are more arbitrary, and must depend upon the Observation of the Patient, as he finds them agreeable to his Stomach, and sit easily or not: Where too great Quantities have not been swallow'd down in a Morning, they are very proper, provided they be in proportion to the Morning's Quantity, and never taken under four or five Hours after Dinner; and that at Night, not under two or three Hours after Supper; these times being the most proper to assist the Digestion, and carry off the Remains of the Food. But the Truth is, as nothing is more necessary in a Course of these Waters than setting out right at first; so nothing requires more the Experience and Judgment of a Physician, than the accommodating the previous Preparations, the Quantities to be drank, and the Medicines to be taken with them, to the Distemper, and the Constitution of the Patient; for, these once settled, the rest generally goes on successfully.

It is equally impossible to determine the most proper Season for drinking *Bath* Waters, as it is to determine the most probable Season for falling ill of a chronical Distemper: Generally speaking, most chronical Diseases rage Spring and Fall, and Custom has made these Months Seasons for the *Bath*; but the Waters are ever the same, no real Alteration having ever been observed in them from Times or Seasons; tho' there may be some little Variation of their sensible Qualities, from the Variation of the Air and Weather. In the hottest Weather they are given off for a Month sometimes, by those that have drank them a long time before; but a great many, especially those of the tender Sort, and of cold Constitutions, feel the best Effects from them in that very Month: And with some they are best in the coldest Weather, supplying then the Inclemency of the Air by their kindly Warmth; and passing best, when the Fibres are wound up and shorten'd by the outward Cold, whereby the Circulation becomes brisker and stronger. So that Custom and Conveniency, arising from outward Circumstances, have made Seasons for the *Bath*, more than the Nature of the Waters themselves, or their Fitness to produce their benign Effects. The Length of Time People ought to drink the Waters is as little to be determin'd as the most proper Season, or as the Duration of a chronical Distemper: If they are of the Nature of an alterative Medicine, (as they most certainly are) they are to be continued till they either disagree, or the chronical Distemper ceases: And this last generally requires a Time in Proportion to the Inveteracy and Obstinacy of the Disease: Hereditary Sharpnesses require more Time than acquired ones; slighter Degrees of the same Case, less than more inveterate ones; nervous Distempers more than those confin'd to the Blood. A Lady of a low, hysterical, and weak Constitution, having ask'd the famous Dr. *Sydenham*, (as she told me) How long she might safely take Steel; his Answer was, That she might safely take it for thirty Years, and then begin again, if she continued ill. The Question might be as proper, if it

had been ask'd, How long time one might continue to eat and drink; for, in Lowness and Disorder, if Remedies be necessary, Nature will as safely admit them, as Hunger will safely admit of Food. I very well know, that Remedies, in chronical Distempers, must be changed, when they become familiar, and have no Effect; as the same kind of Food ought to be chang'd, when it becomes nauseous and disgustful. But then, this belongs not to the Question proposed, which supposes the Waters have not abated of their first Benefit and Relief, but rather increase in them, and do better; and, on this Supposition, there can be no doubt, that they may be safely continued till a perfect Cure is obtain'd, or they fail in their Relief. Some have drank them several Years with Advantage; and many cannot live, and be well, without them, as is evident from the constant Residing of several Families here for their Use. Whilst the original Disorder lasts in any Degree, and the Waters continue to relieve it, they may be used; but in all Cases, and Events, it is safest and best to let *Well* alone.

It has been alleged, that the *Bath* Waters, drank too long, dispose People to Fevers, and inflammatory Distempers, by over-enriching, heating, and exalting the Blood: But this Objection lies equally against all generous Foods, and enlivening Medicines. And, indeed, Temperance and Moderation, in every thing necessary for the Support of Life, is best and safest: And, as I just now said, it is best always to let *Well* alone; but as long as a chronical Distemper is yet unconquer'd, and unremedied, there can be no Hazard of over-enriching the Blood, the very Case supposing the quite contrary, *viz.* that there are remaining Sickness and Sharpness in the Blood and Juices: So that, while the original Distemper continues, this Effect is not to be fear'd; and, when it is conquer'd, the Patient is very indiscreet, that, out of mere Wantonness, would play with any Medicine whatever. But this is the Case of a very few, and, if ever I have met with any such, I have always religiously advis'd them to abstain from Waters, and every thing else, that can be call'd Medicinal; for this Reason, amongst many others, that it made a very useful Remedy become less effectual, when wanted, by being made more familiar. But the Truth is, most of the chronical Distempers, for the Cure of which *Bath* Waters are recommended, are of the colder Kind, where the Blood is fizy, poor, and dispirited; and, whilst any Remains of the Distemper last, over-enriching or exalting is little to be fear'd; and when they happen, are easily remedied by Bleeding, low Diet, and a few cooling Purges. *Cheyne's Account of the Nature and Quality of Bath Waters.*

BALOIOS, *Βαλοῖος*, as *Galen* writes it; or *Βάλεος*, as it occurs in the seventh Book of the Epidemics of *Hippocrates*, where it either signifies a *Man of Valva*, a City of *Macedonia*, or is the Name of the Person whose Case is there related.

BALSAMATIO, Embalming.

BALSAMELÆON. The same as the *Balsamum e Mecha*. See BALSAMUM.

BALSAMELLA, according to *Blancard*, is the same as *Balsamina*.

BALSAMICA, Balsamics; that is, Balsamic Medicines, of which *Hessman* gives the ensuing Account:

Balsamic Medicines are of a Nature somewhat hot and acrid. Under this Denomination come what we commonly call cephalic, nervous, apoplectic, and antiparalytic Medicines; as also spirituous Cordials, and other Substances of similar Natures and Qualities: But, of all the Medicines belonging to the *Balsamic* Class, these are the most noted and efficacious, Aloeswood, together with its Resin and Essence; yellow Sanders, with its Essence, reduced to a liquid Balsam; Ambergrise; Liquid Amber; Balm of Gilead; Amber; Benzoin; Storax, with its Resin; the Ladaniferous Shrub, with its Resin; the Balsams of *Peru* and *Tolu*; Balsam of Capivi; and that call'd the red *American* Balsam; the true *Peruvian* Bark; the bitter Costus; *Indian* Bark; Cinnamon; Cloves; Cardamoms; Cubels; Mace; Nutmegs; Savory; Thyme; Rue; Mother of Thyme; Lavender; our Origanum, and that of *Crete*; Marjoram; our own and *Turkish* Baum; *Roman* Chamemile; *Syrian* Herb Mallich; Basil; Southernwood; Spikenard; Camel's-hay; Bay and Myrtle-leaves; together with the genuine, fragrant, and unadulterated Oils distill'd from them. The compound Balsamics are, the Apoplectic Balsam of *Crolius*; the Balsamum Cellense; that of *Scherzerus*; and the liquid Balsam of Life; Spirit of *Peruvian* Balsam, prepar'd in my manner; Spirit of Amber and Mallich; the Apoplectic Water of *Sennertus*; the *Aqua Anbaltina*; the true Essence of Amber; and volatile oily Spirits, impregnated with Oil of Cinnamon, Mace, and Cedar.

These Simples, and the Medicines prepared of them, by means of their fine, ethereal, subtil, and volatile Oil, which is grateful and agreeable to the Constitution, act upon the Fluids as well as the Solids of the human Body, diffuse their Virtues thro' all its Parts, supply the Blood and Humours, with a seasonable Reinforcement of sulphureous, warm, and ethereal Part, increase their intestine Motions, and convey a genial Vigour to the vital Juices. They also abound in a subtile,

tile; acrid, balsamic Salt, by means of which they augment the Force and Elasticity of the Heart, Arteries, and muscular Fibres, in consequence of which, the Circulation of the Blood and Humours is promoted, the thick and viscid Juices attenuated, Obstructions are removed, and Perspiration is preserved entire, a Circumstance of the last Importance in curing *Diseases*.

In all Diseases therefore of the Head, Nerves, Spinal Marrow, Stomach, and Heart, which, according to the Antients, proceeded from a cold Cause, or, in other Words, from inspissated and condensed Juices, or from the Tone of the nervous and muscular Parts being destroy'd; such as Apoplexies, Palsies, Numbness, and Torpor of the Senses, Weakness of Memory, Difficulty of Hearing, Faintings, and excessive Weakness, these Medicines may be used both internally and externally with due Success.

They are also of singular Service in those Disorders of the Stomach and Intestines, which proceed from their Tone being too much weaken'd, an Excess of acid and viscid Crudities, or a deprav'd Digestion, such as Inflammations, Diarrheas, flatulent Colics, and Vomitings. Besides, they have this peculiar Advantage, that they are exquisitely suited and adapted to the Old and Infirm, to such as have the Misfortune of lax Habits, or phlegmatic Constitutions.

They are also of singular Service, especially as a Preservative, when, in consequence of a cold and moist Constitution of the Year, especially in the Autumn and Winter Seasons, and in the more Northerly Climates, moist Coughs, Diarrheas, pituitous Asthmas, œdematous Tumors, Coryzas, Rheumatisms, intermittent Fevers, and Disorders arising from a scorbutic Impurity, either actually rage, or are apprehended.

But they are to be used cautiously, and in moderate Doses, by young People, and Patients of choleric and delicate Constitutions, as also in Cases where the Body abounds with Blood and Humours.

I myself, for more than twenty Years, have used a liquid Balsamic, commonly called the *Balsam of Life*, prepared of the most efficacious of the above-mentioned Ingredients, especially the Oils genuine and unadulterated, which is a Medicine of so uncommon Efficacy, that the Person who knows how to use it right, both internally and externally, may rest satisfied without any other Corroboratives or Balsamics whatever. And, indeed, this delicious and efficacious Medicine is now universally celebrated, on account of its corroborating and restorative Qualities; but this, like all other valuable Medicines, has been counterfeited and sold to the Credulous and Unwary for my genuine *Balsam of Life*; but the supposititious is never able either to answer the Intention, or support the Character, of that Medicine. *Hoffman*.

See BALSAMUM.

See VITÆ BALSAMUM.

BALSAMINA.

There are two Plants which are called by this Name, the first of which is thus distinguished:

Momordica Balsamina, Offic. *Momordica*, Schrod. 4. 105. *Momordica Officinarum*, Volck. Flor. Nor. 293. *Momordica vulgo*, Hort. Lugd. Bat. 429. *Momordica vulgaris*, Tourn. Inst. 103. Elem. Bot. 87. Boerh. Ind. A. 2. 76. Rupp. Flor. Jen. 41. *Momordica, Balsamina, Cucumeraria, Pomum mirabile*, Chab. 135. *Momordica Balsamina mas*, Ger. 290. Emac. 362. Park. Theat. 714. *Momordica, Balsamina rotundifolia repens seu mas*, C. B. Pin. 306. Raii Hist. 1. 647. *Balsamina Cucumerina Indica, folio integro, fructu variegato*, Chom. in Not. Hort. Mal. 8. 22. Flor. Mal. 52. *Balsamina Cucumeraria*, J. B. 2. 251. *Cucumis puniceus Cordii*, Hist. Oxon. 2. 33. *Piperitis*, Tourn. Mat. Med. 357. *Balia-mucca-Piri*, Hort. Mal. 8. 21. Tab. 2. *Cucumerina Indica, folio integro, fructu variegato*, Chom. in Not. MALE BALSAM-APPLE.

It is cultivated in Gardens, and flowers in *August*.

The Fruit, which is the Part in Use, is of a refrigerating and somewhat drying Quality, a Vulnerary, and mitigates Pains, especially of the Hæmorrhoids. Outwardly, it is good for Wounds of the Nerves, Herniæ, and Combustion.

The Balsam which has been made for a long Time of the Fruit of this Plant dipt in Oil, and dry'd in the Sun, is of excellent Virtue in Wounds, Ulcers, especially the Hæmorrhoids, Ulcers of the Matrix, and Ruptures.

The other *Balsamina* is thus distinguish'd:

Periscaria siliquosa, CODDED ARSMART. Offic. Ger. 361. Emac. 446. Raii Hist. 2. 1328. Merc. Bot. 2. 28. Phyt. Brit. 90. Mer. Pin. 92. *Balsamina lutea, seu Noli me tangere*, C. B. Pin. 306. Tourn. Inst. 419. Elem. Bot. 332. Boerh. Ind. A. 320. Raii Synop. 3. 316. *Balsamina, Herba impatiens, seu Noli me tangere, Floris petalo luteo*, Hist. Oxon. 2. 282. *Noli me tangere*, J. B. 2. 908. Chab. 287. *Mercurialis sylvestris, Noli me tangere dicta, seu Periscaria siliquosa*, Park. Theat. 296. QUICK IN HAND, TOUCH ME NOT.

VOL. I.

It is cultivated in Gardens, and the Herb is in Use, which is so forcible a Diuretic as to induce a Diabetes, and is thought to be of a pernicious and deleterious Quality.

BALSAMITA MAS, *Costus hortorum*, Offic. *Balsamita mas*, Ger. 523. Emac. 648. *Balsamita mas, seu Costus hortorum major*, Park. Parad. 482. *Balsamita major*, Boerh. Ind. A. 125. Hist. Oxon. 3. 3. Act. Reg. Par. An. 1719. 280. *Costus hortorum major*, Park. 78. *Mentha hortenensis corymbifera*, C. B. 226. *Mentha corymbifera, seu Costus hortensis*, J. B. 3. 144. Raii Hist. 1. 363. *Mentha corymbifera Græca, Romana, Sarracenica, seu Costus hortensis*, Chab. 368. *Tanacetum foliis & odore Menthæ*, Herm. Cat. 697. Tourn. Inst. 461. *Tanacetum hortense, Lepidii foliis serratis, Ageratum intense redolens*, Pluk. Almag. 361. *Tanacetum hortense, foliis & odore Menthæ*, Hort. Lugd. Bat. 697. *Ageratum latifolium serratum*, Hort. Montp. 7. *Mentha Sarracenica*, Offic. Ger. COSTMARY.

The Roots of Costmary are hard, long, and stringy, creeping in the Ground; the lower Leaves are about as big as Garden Mint, of a palish or yellow-green Colour, standing on long Foot-stalks, very neatly serrated about the Edges. The Stalks rise to be more than a Foot high, having several the like, but smaller Leaves growing on them, they are divided into Branches toward the Top, each of which is terminated by a thin *Corymbus* or Umbel of naked, deep, yellow Flowers, having no *Petala* surrounding them, but set in scaly *Calycs*, being lesser than the Flowers of Tanfy. The whole Plant has a soft, pleasant Smell. It is planted in Gardens, and flowers in *July*.

The Leaves are chiefly used, being warm and drying, of Use to heat and strengthen the Stomach, and to ease the Head-ach, arising from the Disorders thereof, to expel Wind, and prevent sour Belchings. It likewise opens Obstructions of the Liver and Spleen, and is good for the Dropsy and Jaundice. Outwardly it is used in heating and warming Fomentations and Bathings, being good to comfort and strengthen the Limbs. *Miller's Bot. Off.*

BALSAMUM, Balsam. Of this there are many Sorts, both natural and artificial.

Under the Distillation of Turpentine, *Boerhaave* gives an Analysis of all the natural *Balsams*, as follows:

The VINEGAR, SPIRIT, two Kinds of OIL, ROSIN, and COLOPHONY, from TURPENTINE, distilled by the Retort.

1. Take a clean, new Glass Retort with a wide Neck, and cut it off short, so that the Mouth may remain large and capacious, which is a principal Requisite in this Operation; then heat pure native Turpentine in an earthen Vessel, having a Lip to pour out at, by putting the Vessel into scalding hot Water, till the Turpentine grows fluid like Water; then pour this melted Turpentine hot, in at the wide Mouth of the Retort, which is first to be strongly heated to prevent its cracking as the Turpentine is poured in. Let two Thirds of the Retort be thus filled, and leave the other Third empty; then hold the Retort, so filled, with its Neck erect, till the Turpentine shall have run quite down the Neck into the Belly, if any of it happen to stick to the Neck in pouring; otherwise this gross Turpentine would run down into the Receiver in the Distillation, and foul the Liquor that first comes over: Now place the Retort in a Sand Furnace, and lute on a clean Receiver.
2. Make a Fire that may heat the Sand to about one hundred Degrees, and carefully keep it at this Height, so long as it drives over any Liquor; by which means a thin, limpid Fluid, resembling Water, will come over, and fall to the Bottom of the Receiver, whilst another limpid, thin, and oily Liquor floats upon it. When nothing more rises with this Degree of Fire, change the Receiver; the under Liquor will be found gratefully acid, saline, aqueous, miscible with Water, refreshing to the Stomach, spirituous, and excellently diuretic. It will make an Effervescence with Chalk, deposit its Acidity therein, and afterwards distil from it in form of a pure Water: Whence we perceive, that the acid Salt and Water first come over in this Distillation. The other Liquor, which floats upon this, is a light, pure, thin, almost spirituous and inflammable Oil, thence called the *Ethereal Oil of Turpentine*, which is so penetrating as to vanish when rubbed upon the Body, pass into the Blood, and soon communicate a violet Smell to the Urine; which is an evident Sign of the Power it has to pass thro' all the Pores.
3. Let a proper Receiver be now applied, and a Heat, equal to that of boiling Water, be raised; this is done by pouring Water upon the Sand, and heating it with the Fire underneath, to two hundred and twelve Degrees, where it is to be kept, continually adding as much boiling Water as exhales away. The Matter remaining in

the Retort, after the first Operation, is left so thick as to appear consistent in the Cold; but now melts again, crackles between whiles, and again affords an acid Water, like the former, that falls to the Bottom, and an Oil, also, like the former, floating at the Top, but somewhat thicker, and a little yellowish: Both of them have nearly the same Virtues as mentioned above.

4. The Receiver being again changed, and the Fire gradually increased up to a strong Degree of a Sand-heat, tho' with Caution in the raising it, there will come over an acid, ponderous, red Water, that runs separate into the Bottom of the Receiver, and a thick, red, penetrating, tho' somewhat viscous Oil floating on its Top; and it is remarkable, that this acid Water always continues to rise with the Oil, and not the Water first by itself, and the Oil afterwards. What now remains in the Bottom, after this last Distillation, proves, when cold, exceedingly red, hard, and brittle.
5. I have urged this remaining Matter with Caution, and by slow Degrees, up to the strongest Heat that Sand, and a Fire of Suppression, would afford; and have thus obtained red Oil, so thick and viscous, as to resemble Turpentine itself; but it was of a red Colour, and some red, acid, ponderous Water still continued to rise with it, leaving scarce any thing behind at the Bottom of the Retort.
6. There is the greatest Caution required in this Distillation, to prevent the Glasses bursting or cracking, whereby a dense, oily Fume would immediately escape, which readily takes Fire, and can scarce be extinguished; whilst the Fire is impetuously hurried into the Retort with a Flame that bursts the Vessels to Pieces in a dangerous manner. Turpentine is otherwise commonly distilled into an acid Water, an ethereal Oil, or Spirit of Turpentine, after this manner: Fill one third of an Alembic with pure Rain-water, and add thereto half its Weight of good Turpentine; then fix on the Head, and use the Worm and Refrigeratory. Thus distilling with Care, and a Fire that makes the Matter gently boil, there comes over an acid Water, and a pure light Oil. If the Distillation be continued so long as this Oil continues to run, there remains behind a kind of Colophony in the Still: And if the Flowers of Lavender, Roses, or other odoriferous Plants, be here put into the Still, the Oil will come over fragrant by this Operation. Therefore Turpentine is resolvable into Water, a saline, acid Spirit, a volatile Oil, and a more fixed Colophony. It is here chiefly remarkable, that the Remainder proves so much the thicker, redder, harder, and more brittle, the more Water, Acid, or volatile Oil comes over; and that even this last fixed Matter itself at length liquifies, and becomes volatile with the utmost Violence of the Fire: And this acid Water, being well separated and rectified from all its Oil, perhaps affords the best vegetable Acid hitherto known.

R E M A R K S.

1. Hence we learn under what Form native Oils reside in Plants; for, first, the nutrimental Juice, drawn from the Earth, seems to be a somewhat tart and aqueous Liquor, which, when received, gradually deposits its more unctuous Matter in certain Parts of the Plant; and this unctuous Matter afterwards uniting more of the same to itself, by Heat, Maturation, and the Assistance of the whole Powers of the Plant, it then appears in the Form of a fat Oil, which being driven outwards, and undergoing the same Changes in a greater Degree, at length constitutes a *Balsam*, containing a Water, a saline Acid, and unctuous Spirit, and different Kinds of Oil, all mixed together, yet separable; and after the Separation of any particular Part, the *Balsam* constantly changes to a different Form. Hence appears the great Difference of native *Balsams* in Chirurgical and other Medicinal Uses; whilst they act in their own Substance, and so by means of all their Principles together, or only by means of certain, particular, separated Parts. When used entire, and mixed with the Yolk of an Egg, Turpentine becomes somewhat more soluble, and an admirable Remedy for external Chirurgical Uses; and, internally, it proves excellent in many Distempers, where it gives Signs of its extraordinary Virtue, by its penetrating Nature, and the violet Smell it communicates to the Urine. We have many *Balsams* of this Kind, not differing so much in Virtue, as in Price and Place of Growth; as the *Asiatic*, *Egyptian*, *Hierichuntan*, *Judaic*, *Memphitic Balsams*, and *Balm of Gilead*; for these several Names at this Day denote the same thing; or a *white Balsam* in the Form of a liquid Turpentine, and of a citron Smell. The *American Balsams* are various, and proceed from different Trees; as the *Balsam of Capivi*, which is of extraordinary Virtues; the *Balsam of Peru*, *Tolu*, and liquid Amber.

The true Turpentine proceeds from the Turpentine-tree of *Chio*, the Fir, the Larch, and the Pine; but all these Kinds generally resolve into the same Principles by Heat and Distillation, change alike with Time, and produce the same Effects.

2. We know, likewise, that all the Kinds we are hitherto acquainted with, contain an acid Water, or Spirit, which is volatile, preservative, esurine, and penetrating, of great Medicinal Virtue and Fragrance: This Spirit easily exhales, and leaves the *Balsam* deprived thereof, and therefore less excellent; whence these *Balsams* are not the better for keeping.
3. The Oils which first come over are light, limpid, totally inflammable, extremely penetrating, bitter, and of great Use in Surgery, as being highly anodyne, resolving, and healing, when apply'd warm to the Membranes, Nerves, or Tendons, that are lacerated, pricked or cut, and an immediate and safe Styptic, apply'd to the wounded Veins or Arteries in large Hemorrhages, as at once defending the Nerves, stopping Putrefaction, and incarning. In these Cases it should be apply'd very hot to the Part; and kept thereon by a proper Pledget and Bandage. Its *balsamic* or embalming Virtue is extraordinary; for if the Bodies or Parts of any Animals be for some time steeped in this Liquor, then taken out, and awhile suspended in the Air, and afterwards dipped afresh, they at length acquire a Case, under which they may be long preserved from Putrefaction: But the Bodies plunged into this Oil, whilst contained in Glasses, are preserved perfectly uncorrupted. It has, however, this Inconvenience, that it gradually grows opaque and thick. The Oil, being used hot externally, discusses cold, viscid, and mucous Tumors, defends the Parts against Cold, relaxes and softens them. When used internally, it also proves aperitive, heating, sudorific, and diuretic, communicating a quick Smell of Violets to the Urine: Whence it proves serviceable in the cold Fits of intermitting Fevers, and being rubbed along the Back-bone, before the cold Fit is expected, it will even cure Quartans. It must, however, be used with Caution, because, if taken too largely, it affects the Head, occasioning Heat and Pain therein, and also proves violently diuretic, and occasions an Effusion of the Liquor of the *Prostate Glands*, and the *Semen*; and therefore, if used with Moderation, it excites Venery. Hence it came to be recommended in the Cure of a Venereal Running, where it often proves mischievous, as being subject, when freely used, to inflame the Parts, and increase this Disorder.
4. The thicker Oils that come over in this Distillation are more *balsamic*, incarnative, and anodyne, more penetrating and emollient; and are therefore used as Styptics, instead of the former thinner *Balsam*, in hotter and more inflammatory Constitutions; in other respects they agree with the former. But the last thick and viscous Oil is an admirable Incarnative, that heals almost without Suppuration, and a most extraordinary Anodyne. This Oil also makes such an Effervescence with *Glauber's* strong Spirit of Nitre, as often to take Flame.
5. What remains behind upon the Distillation of pure Turpentine with Water, or after the first Oil and Spirit are drawn over, proves hard, brittle, transparent, and red in the Cold. If this be gently melted, and any Insect be dipped therein, and carefully taken out again, it will be surrounded with a transparent Case like Amber, thro' which the Subject may be commodiously view'd; and the Whole may be thus kept for a long time beautiful and unalter'd, provided the Polish be not obscured, as it easily is, on account of the great Brittleness of this resinous Crust. But the Colophony, remaining after the second Distillation, is harder and redder, and easily reducible to fine Powder, which has little Smell or Taste. This is that extremely useful Powder, which is so advantageously apply'd to the bare Bones, Periosteum, Tendons, or Muscles, in case they are either burnt, corroded, bruised, cut, pricked, or lacerated; and affords an excellent Remedy in ferous Fluxes of the Joints, and admirably procures a Cicatrix: In the same manner it takes down the fungous Excrescencies of Ulcers; whence it appears, that Turpentine serves for many Chirurgical Purposes. But nothing is here more extraordinary than the successive spontaneous Inspissation of the first exceeding thin Oil, so as to recover the Thickness of Turpentine again, and afterwards the Consistence of a thicker *Balsam*, and at length of a Resin; tho' there is less Acid in these regenerated Resins, than in the native.
6. Possibly, therefore, the native, acid, volatile Salt contained in this fat unctuous Substance, and in the Water, is the same Spirit, which, in other essential Oils, constitutes the aromatic Spirit; for it is so lodged in the native Fat, as, together with the Water, to lie concealed under the Form of one mixed Body: Whence natural *Balsams* are changed

changed into Oils, upon losing their Water, and their Rosin. Again, *Balsams* are changed into Rosins upon losing their Water, Acid, and Oil; whence this happens spontaneously with Time in the open Air, whilst the Action of the Sun, by dissipating the Acid, the Water, and the thin Oil, at length, through various Degrees, brings it to a Rosin. Whence Oils in the Spring are Rosins in the Winter, and in Autumn afford a proper Covering to Trees, so as to defend them from Cold, Dryness, and Frost.

7. This Experiment clearly shews, (1.) That the utmost Heat of the Sun, long continued, may gradually inspissate and change liquid Oils, through various Degrees of Thickness, up to that of Rosin or Colophony. (2.) That the Heat of boiling Water has this Effect sooner; and, by discharging the Oil, leaves a Colophony behind in four or five Hours time, whilst the exhaling Fume proves an acid Water, and a Spirit mixed among a large Quantity of Oil; the Colophony remaining hard behind. (3.) That this Colophony, being urged by an Heat of two hundred and eighty Degrees, is again resolved into an acid Water, and a red, viscous, ponderous Oil, leaving an extremely hard, transparent Colophony behind, of a Colour compounded of Red and Black, and capable of enduring unaltered for Ages. But when this itself comes again to be urged with the utmost Violence of a Fire of Suppression, so as almost to melt the Glass, its whole Quantity is, by the sole Force of the Fire, turned into an oily liquid Substance, though somewhat viscous, without leaving any hard Colophony behind. (4.) Whence we learn both the changeable Nature of vegetable Oils, and the surprising Variety of the Action of the Fire upon them, which, with a certain Degree of Heat, inspissates thin Oils, and brings them to an hard consistent Mass, that would always remain the same; though a greater Degree of Fire again reduces it to a liquid Oil, which likewise would long continue in this State; but, by a repeated Distillation with a strong Fire, it becomes totally liquid, and considerably thin; whence it is certain, that many Bodies owe their Hardness, and others their Fluidity, to the Fire. *Boerhaave's Chymistry.*

The very Word *Balsam* seems, in all Ages, to have had an Idea of Excellence and Efficacy affixed to it, above any other Branch of the *Materia Medica*; for the ancient Physicians, by this Word, meant any Species of Medicine, which powerfully recommended itself by a grateful and delicious Fragrance, and whose Use, both internal and external, was of singular Efficacy in preventing Putrefaction, and resisting Corruption. *Balsams*, 'tis true, were originally used for embalming and preserving the dead Bodies of those, who, during their Lives, had signalized themselves by great and heroic Deeds, or endeared themselves to Mankind by the Practice of the several Virtues. And when the thinking and sagacious Part of Mankind observ'd, that the Bodies of the Dead, were, by means of *Balsams*, enabled to defy the Attacks of Corruption, for an immense Series of Years, they began to imagine, that their Virtues might extend to the Living, protract Life, and corroborate what they called the *Calidum Innatum* fluctuating in the Blood. But however unintelligibly they may have talked upon this Point, yet 'tis certain, the Notion itself was just and well-founded, since we are taught by Experience, that amongst the vast Variety and infinite Store of Medicines, with which the Mineral, Animal, and Vegetable Kingdoms supply Mankind, none are more powerful, none more efficacious, than those which come under the Denomination of *Balsams* and *Balsamics*. But as all *Balsams* are not alike efficacious, nor equally adapted to Medicinal Uses, I shall only consider those *Balsamics* which seem best calculated to answer the Intentions of Medicine, whether Preservative or Curative; and that I may execute the Design with the greater Accuracy, and afford the inquisitive Mind the higher Satisfaction, I shall specify the Principles by which they operate, enumerate their several Virtues, and give Directions with regard to their Uses. But, for the sake of Perspicuity, it will not be improper to inquire into the Origin of the Word *Balsam*, and ascertain the precise and determinate Idea, which I myself affix to it.

Since then the Inhabitants of *Palestine*, and the Coasts of *Phœnicia*, and perhaps their Neighbours the *Arabians* and *Egyptians*, were, according to the Accounts we have, the first who used *Balsams*, common Sense directs us to the Genius of the Oriental Languages for the Origin of the Name. Whether then it is a simple Word, which is most probable, and most consonant with the Genius of the Eastern Language, deriv'd from *בשם* *Bosēm*, a Word peculiar to the *Hebrews*, for expressing the most fragrant and delicious Substances, in which other Nations have probably inserted an additional Letter, as in many other Instances they did; or whether with others we maintain, that it is compounded of *בשם* *Bosēm* and *שמן* *Sēmān*, which signifies the Chief or Prince of Oils and Spices; yet still it amounts to the same, since by the Import of the Word, in both Cases, 'tis plain, that only

the best Spices, Oils, and Resins, and such as excell'd all others in their Virtues, the Fragrancy of their Smell, and the Sweetness of their Taste, were called *Balsams*. Neither shall I, in the Course of this Dissertation, affix any other Idea to the Word *Balsam* or *Balsamic*, than that of a Medicine possessed of a sulphureous, resinous, and oily Principle, which at the same time must be fragrant and friendly to Nature, and by means of which it operates. Two things must therefore concur to characterize and constitute a *Balsam*: The first is, that the greater Part of the Substance ought to be inflammable, that is, either of an oleous, or resinous Nature. The second Circumstance necessary to constitute a *Balsam*, is, that the Substance be of a grateful Smell, and pungent Taste, that it may give Proof of its Efficacy, and of the Smallness and Minuteness of its Parts. So that, according to this Hypothesis, all Sulphurs, and resinous Substances, as also all inflammable Oils, though of the Consistence of a *Balsam*, are yet to be excluded from the Class of genuine *Balsamics*, if they want that Fragrancy of Scent, and Deliciousness of Taste, which are requisite to constitute a *Balsam*. Thus Naphtha, or Rock Oil, *Jerus Pitch*, Pitch, Resin of the Pine, the Oils of Turpentine and Fir, ought by no means to be ranked among the Class of *Balsamics*, though they are inflammable penetrating Substances, excellent for the Purposes of embalming, and promise very salutary Effects, both when used internally and externally. Yet because they abound in a too strong, acrid, and penetrating Sulphur, which is not altogether friendly and agreeable to Nature, they are therefore less fit for restoring lost Vigour, and recruiting impair'd Strength. Nor are Substances whose sole Property is Fragrance of Smell, such as Civet, Musk, and the fragrant Flowers of Jessamin, Oranges, or the Hyacinthus Tuberosus, to be properly termed *Balsamics*, because Fragrancy alone, which is owing to a fine and easily exhal'd Sulphur, is not sufficient to constitute a *Balsam*; but 'tis necessary, that this fragrant Principle be blended and incorporated with a subtile acrid Oil, and an inflammable Resin.

BALSAM of MECCHA.

'Tis therefore justly to be doubted, whether a true and genuine *Balsam* is to be found in the Animal Kingdom. Mean time the Vegetable Kingdom is richly stored with Medicines of this Class, of which the most ancient, and that which first bore the Name of *Balsam*, is the *Opobalsam*, both *Arabic* and *Egyptian*. This was produced by a small Tree growing in *Judea*, *Egypt*, and *Arabia*, the Whole of which was of a fragrant Smell; and when an Incision was made into its Bark, it yielded a resinous Juice of a most grateful Odour, and of uncommon Virtues. The Antients called the Wood of this Tree *Xylobalsamum*, and its Fruit *Carpobalsamum*; but the Name *Opobalsamum* was appropriated to its Juice or Tears. Of this Tree, *Strabo* the Prince of ancient Geographers gives us the following Account, *Lib. 16.* "There is a Field near *Jericho* in *Palestine*, in which there is a Nursery of *Balsam-trees*. "This Tree is a certain small, odorous, aromatic, and fruticose Tree, not unlike the *Cytisus*, or *Turpentine-tree*. "When an Incision is made into its Bark, it yields a Juice resembling viscid and tenacious Milk, which, when received in Shells, coagulates. It wonderfully cures Head-achs, recent Inflammations of the Eyes, and Heavinesses; and what contributes much to the Value of this Medicine is, that it is found no-where else but here." *Prosper Alpinus*, the most accurate Describer of the *Egyptian* Plants, agrees with this Account, and in *Tract. de Plant. Egypt.* writes thus: "The *Xylobalsam* is a small Tree, which grows to the Height of the *Cytisus*, bearing few Leaves, which resemble those of Rue, or those of the *Mastich-tree*, but which are always green. Its Branches are odorous, and so gummy, as to stick to the Fingers when handled. It bears small white Flowers resembling those of the *Egyptian* Thorn, but very fragrant, from which arise yellow Seeds, contained in Husks of a blackish red Colour, very fragrant, and containing within them a yellow Juice, which bears a near Resemblance to Honey; and which affects the Tongue with a bitter, and somewhat acrid Taste, and smells like *Opobalsamum*. Its Fruit, in Figure and Bulk, resembles that of the *Turpentine-tree*." 'Tis to be observ'd, that several Authors assert, that this Tree does not grow naturally in *Judea*, but was brought into it when a great many other Plants were transplanted from *Mecca*, a Town of *Arabia Felix*, into *Palestine*, whence they were convey'd into *Egypt* in the Days of *Mark Antony* and *Cleopatra*. Many are of Opinion, that there is now no such thing as the true *Opobalsam*, and that the genuine Species, of old produced in *Egypt*, is not to be met with in any Part of the World; for that which is sold for *Opobalsamum* in small Boxes made of the Shells of Nuts, is, in their Opinion, composed of *Peruvian Balsam*, *Benzoin*, and *Storax*, as *Pomet*, in his History of Drugs, informs us. But it seems pretty probable, that there is at this very Day such a thing as true *Opobal-*

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Opobalsamum; for that brought from *Meccha*, which is called the *Balsam of Meccha*, and is described by a great many Authors, is of equal Efficacy with the *Opobalsamum*. It is a Liquor of an oleous Nature, as thick as Turpentine, of a penetrating and grateful Taste and Smell. It is sold at a very high Price, since half an Ounce of it cannot be purchased under two Imperials (about one Pound five Shillings). *Clusius*, in *Exoticis*, is of the same Opinion with regard to the *Opobalsamum* being still in the World; for in *Lib. 10. Sect. 9. de Balsamis*, he has these Words: “*Arubia Felix*, the Country which has in all Ages, and now does produce balsamic Plants, affords true and genuine *Opobalsamum*.”

This *Balsam* was always had in so great Esteem by the Antients, that they made it an Ingredient in their most noble Antidotes, which were sold for double their Weight of Silver, according to *Theophrastus*, *Pliny*, and *Dioscorides*. This is easily accounted for, since the *Balsam-tree* being very small, and not able to afford a great Quantity of the *Opobalsamum*, its Price must of course have run high. This also was the Reason why the *Opobalsamum* of the Antients, according to *Lobelius* in *Animadversionibus*, was often vitiated with Cyprus Turpentine, or Oil of the Mastich-tree. Since then the *Balsam of Meccha*, of all others the finest, is, without Doubt, the true *Opobalsamum* of the Egyptians, and exactly resembles it in all its Qualities, its Use in Physic is for this very Reason to be highly commended; for of this, dissolved and prepared with a spirituous Menstruum, in which Amber is intimately mixed, very efficacious and elegant Medicines may be prepared for internal Use. *Hoffman*.

This precious Balsam-tree is thus distinguish'd:

BALSAMUM JUDAICUM, GILEADENSE, & MECHA verum, & *Opobalsamum*, seu Oleum Balsami, five Balsamelæon, Offic. *Balsamum Judaicum*, Ind. Med. 18. *Balsamum de Meccha Judaicum*, *Gileadense*, *Opobalsamum*, Commel. Plant. Ufu. 85. *Balsamum à Meccha*, *Balsamum verum*, Mont. Exot. 16. *Balsamum verum*, J. B. 1. 298. Chab. 24. Raii Hist. 2. 1755. *Balsamum genuinum antiquorum*, Park. Theat. 1528. *Balsamum ab Ægyptiis Balestan*, Alp. Ægypt. 60. *Balsamum*, Velling. Obs. 17. *Balsamum Alpini*, Ger. 1343. Emac. 1528. *Balsamum Syriacum*, *Rutæ folio*, C. B. Pin. 400. THE TRUE BALSAM-TREE.

This is the thin or liquid Resin of a small Tree or Shrub, that grows about *Meccha* in *Arabia*, bearing ever-green pinnated Leaves, in Shape like those of the *Lentiscus* or Mastich-tree, with an odd one at the End of the Stalk. It bears small six-leaved whitish Flowers on the Top of the Stalk, which are followed by little roundish rugged Fruit, pointed at the End. This Fruit, which is the *Carpobalsamum*, and the Wood, which is the *Xylobalsamum*, are prescribed in some old Compositions; but by reason they are not to be had in the Shops, other things are substituted in their Places.

This is a resinous Liquor, which at first is of the Consistence of sweet Almonds, but by Age becomes like Turpentine, loses much of its Smell, and grows sometimes blackish. When fresh, it is of a very agreeable aromatic Smell, and of a Taste like Citron-peel. The Plant, from which it flows, is called *Balsamum Syriacum*, *folio Rutæ*, C. B. P. *M. Lippi*, sent by *Lewis* the XIVth Ambassador to the Emperor of the *Abyssines*, being in *Egypt*, was at great Pains to discover this Plant, and the ways of procuring the *Balsam* from it. The Substance of what he could find out is, that there are three ways of collecting it, and that there is some Difference in the Liquors collected each way. The first runs of itself from the Tree, the second by Incisions, and the third is got by boiling the Tops of the Trees. The *Balsam*, that rises first after a gentle Decoction, is very good, and much esteemed; but what is got afterwards, is the coarsest Sort, and of least Value. The first kind of *Balsam* is sent entirely to the Seraglio of the Grand Seignior; the other Sorts are suffered to be exported. This *Balsam* is not now to be found in *Judea*, which was its ancient native Soil, and where it was very common before the Destruction of *Jerusalem*; but soon after that, the *Jeus* destroyed all their Trees, lest the *Romans* should make Advantage of them. At present, it is found near *Meccha*, and *Grand Cairo* in *Egypt*, from whence it is carried to *Constantinople*, where it is in great Esteem. In *Asia* it is given in the Quantity of two Scruples, as a Diaphoretic in malignant Fevers; and it is undoubtedly an excellent Medicine for deterging Ulcers in the Lungs, Kidneys, and Bladder, and even for dissolving pulmonary Concretions. But the Use of it ought to be avoided in inflammatory Dispositions of these Parts, even tho' ulcerated. It ought likewise never to be given when there is an Erysipelas in any Part of the Body whatever. It is used with good Success in Gonorrhæas and the Fluor Albus, being given from ten to twelve Drops early in the Morning fasting, the Patient's Body having been well prepared, and the Running having continued some time. It is used externally in Wounds without Contusion, as a Detergent.

The Ladies in *Asia* use it as a Cosmetic, and especially in the Seraglio of the Grand Seignior. In *France* the Ladies for-

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merly prepared a kind of *Lac Virginale* with the yellow *Balsam of Meccha*, dissolved in Spirit of Wine; but they were soon tired of this Method, because it leaves a Crust on the Face. The true Manner of preparing this Cosmetic, is as follows:

Take *Balsam of Meccha*, and Oil of sweet Almonds, of each equal Parts; mix them well together into a kind of *Nutritum*. On three Drams of this *Nutritum* in a Matrafs, pour six or seven Ounces of Spirit of Wine, and leave them in Digestion, till a sufficient Tincture is extracted. Then separate this Tincture from the Oil, and pour about an Ounce of it into eight Ounces of Bean-flower Water, or any other Water of the same kind.

This Mixture is a *Lac Virginale*, which will answer all the Intentions of a Cosmetic, without any Inconvenience. The *Balsam of Meccha* is an Ingredient in the *Theriaca* and *Mithridate*. *Geoffroy*.

Though the *Balsam of Meccha* is by most Authors agreed to be the same as the *Opobalsamum*, yet *Pomet* seems to think them somewhat different. This Author, speaking of the *Balsam of Judea*, says, That the *Turks* have transplanted the Trees which produce this *Balsam*, from *Judea*, to Gardens in *Grand Cairo*, where they are guarded by several *Janisaries* during the Time the *Balsam* flows. A Friend of mine, who has been at *Grand Cairo*, assured me, it was impossible to get a Sight of these Shrubs, except over the Walls that inclose them, the Entrance being prohibited to the *Christians*. And as to the *Balsam*, it is almost impossible to get any upon the Place, unless it is by means of some Ambassador at the *Porte*, to whom the Grand Seignior has made a Present of it, or by the *Janisaries*, who watch this precious *Balsam*; by which we may understand, that what several Cheats pretend to sell for true *Balsam*, is nothing but white *Balsam of Peru*, which they prepare with Spirit of Wine rectified, or with some Oils distilled.

But as it is met with sometimes amongst the Curiosities of People of Distinction, so in 1687. there happened to be a Quantity amongst those of *Madame de l'illéfasin*, amounting to about fourteen Ounces in two leaden Bottles, as it came from *Grand Cairo*, which was sold to a Person who let me see it. We found it to be very hard, of a golden-yellow Colour, and a Smell like that of a Lemon. But, since that, a Friend of mine gave me one Ounce, which he brought himself from *Grand Cairo*, and was of a solid Consistence, like that of Turpentine of *Chio*, and of the Smell above said, which is the true Sign of its Goodness. *Pomet*.

I don't know, that I ever saw the true *Balsam of Judea* more than once. It answers exactly the above-mentioned Characteristics, and was brought from the East, on purpose for the Use of the late Prince *George of Denmark*.

Every Druggist in *London* will sell what is pretended to be *Opobalsamum*; but by what has been said it appears, how cruelly both Physician and Patient are frustrated in their Expectations, when instead of this precious *Balsam*, one of a very different Kind is substituted in its Room.

Pomet, speaking of the *Balsam of Meccha*, says, The *Turks*, who go a Pilgrimage every Year to *Meccha*, bring from thence a certain dry white *Balsam*, in Figure resembling white Copperas calcined, especially when it is stale. The Person who made me a Present of about half an Ounce, assured me, that he brought the same from *Meccha* liquid; and that, as a Cosmetic, it is equal to the *Balsam of Judea*. *Pomet*.

I cannot think this a sufficient Reason for supposing the *Balsam of Meccha* different from that of *Judea*, contrary to the Opinion of most Authors.

Dioscorides gives the following Account of the true *Balsam*.

The *Balsam-tree* grows to the Bigness of the *Lycium*, (*Lycium*, according to some) or *Pyracantha*, and has Leaves like Rue, but much whiter, and far more an Evergreen. It grows in a certain Valley of *Judea* only, and in *Egypt*, differing in respect of Roughness, Tallness, and Slenderness. The fine and capillaceous Part of the Shrub is called *The Gatherings* [*θετσεις*], perhaps, because its Slenderness renders it easy to be gathered. What they call the *Opobalsamum*, is taken in the Heat of the Dog-days, from Incisions made in the Tree by Iron Instruments, of the Figure of human Nails; but so little distils, that they collect no more than six or seven Chore [see *CITRA*, or *CITUS*] yearly, which is sold upon the Spot, for double its Weight in Silver.

The Juice of *Balsam* which is good, is new, smells powerfully, is pure, not inclining to Sourness, is easily diluted, smooth, astringent, and moderately biting upon the Tongue. It is adulterated several ways; some mix with it Ointments, as those of Turpentine, the Cyprinum, Lentiscinum, the Suisinum, Balsaninum, and Metopium, (See these in their proper Places) Honey, and Cerate of Myrtle, or very liquid Cyprian. The Fraud is easily discovered in the following manner.

The pure *Balm*, if dropped upon a woollen Garment, may be washed off without leaving the least Stain or Mark; but the adulterated

adulterated sticks to the Place. The pure also, dropp'd into Milk, coagulates it, which the adulterated will not do. Again, the pure, if pour'd into Milk or Water, is instantly mix'd with it, and turns milky; but the adulterated swims on the Top; like Oil, contracting itself into a Roundness, or diffused abroad in the Figure of a Star. Moreover, the pure *Balm* grows thick with Age; and loses its Virtue. They are mistaken who imagine, that pure *Balm*, when dropp'd into Water, first sinks to the Bottom; and afterwards rises to the Top, and freely diffuses itself.

The Wood call'd *Xylobalsamum* is known to be good by its Newness, its being in slender Branches, its red Colour, and Fragrancy, diffusing its Odours in some measure like the *Opobalsamum*. Chuse such Seed (since this also is necessary to be used) as is of a yellow Colour, plump, large, ponderous, of a hot biting Taste, and smelling, in some moderate Degree, like *Opobalsamum*. The Seed is brought from *Petra*, and resembles that of *Hypericum*, with which it is also adulterated; but you may know the *Hypericum*-seed by its Excess in Bigness, its Vacuity, Want of Virtue, and a Taste like Pepper.

The Juice is of extraordinary Virtue, as being of a very heating Quality, by which it deterges whatever darkens the Pupil of the Eye; and, used as a Pessary, with Cerate of Roses, cures Refrigerations of the Uterus, provokes the Menses, and expels the Birth and Secundines. In Shiverings, being used as an Ointment, it causes a Solution thereof; and deterges the Filth of Ulcers. Drank inwardly, it helps Digestion, and provokes Urine; and is good for such as are troubled with a Difficulty of Breathing. Taken in Milk, it helps those who have swallow'd Aconitum, or been bitten by Vipers. It is an Ingredient in Acopa, Malagmas, and Antidotes. Universally speaking, the Juice of the *Balsam-tree* has the greatest Efficacy; next to this the Seed, and the Wood least of all. The Seed, drank, is good for the Pleurisy, Peripneumony, Coughs, Sciatica, Epilepsy, Vertigo, Orthopnea, Gripes, Difficulty of Urine, and the Bites of Vipers, and other venomous Beasts. It is also well accommodated for Suffumigations, in Disorders incident to the Female Sex; and the Decoction, used in Infections, opens the Uterus, and exhausts its Humidities. The Wood has the same Virtues as the Fruit, only in a lower Degree. Boil'd in Water, and drank, it helps Indigestion, the Gripes, the Bites of venomous Creatures, and Convulsions. It also provokes Urine, and, with dry'd Iris, is proper for Wounds of the Head, and promotes the Exfoliation of Bones. It is also mix'd with Ointments for their Inspissation. *Dioscorides, Lib. 1. Cap. 18.*

BALSAM of TOLU.

The *Balsam of Tolu* justly deserves our next Consideration, since, in our own Days, 'tis by many used as a Succedaneum to the *Opobalsamum*. It is brought from the Town of *Hiobi* or *Tolu*, in a Province of *New Spain*, situated between *Carthage* and *Nombre de Dios*, and is yielded by a Tree resembling the Pine, according to *Ray* in his History of Plants. It is of the Colour of Gold, and smells like a Lemon, especially if it is rubb'd between the Palms of the Hands. It is dry, solid, and pellucid. This *Balsam*, dissolved in tartariz'd and highly rectified Spirit of Wine, affords an Essence, which is both grateful and efficacious in several internal and external Disorders.

The Tree which produces this *Balsam*, is thus distinguish'd.

BALSAMUM TOLUTANUM, Offic. *Balsamum Tolutanum, foliis Ceratiae similibus, quod candidum*, C. B. Pin. 401. Chom. 626. *Balsamum Tolutanum*, Mont. Ind. Exot. 12. Ind. Med. 18. *Balsamum de Tolu*, Park. Theat. 1570. J. B. 1. 296. Raii Hist. 2. 1758. De Laet. Ind. Occid. 367. *Balsamum Provinciae Tolu, Balsamifera*, 4. Hern. 53. *Arbor Balsamifera Tolutana*, Jonsl. Dendr. 308. THE BALSAM-TREE OF TOLU.

Balsam of Tolu is brought to us in small *Callibashes* from *Tolu*, a Province in the *West-Indies*. It is of a tough resinous Consistence, growing dry and friable by Age, of a yellow-brown Colour, of a most fragrant Smell, and an aromatic Taste. It is not certain from what Tree this is produced, some saying it is a small Pine-tree, others a Tree resembling the Carob-tree.

This is an excellent pectoral *Balsam*, of great Service in Affections of the Lungs, as Coughs, Asthmas, Consumptions; and what makes it more valuable is, that it has no nauseous oleaginous Taste, as most other *Balsams* have. It makes an agreeable Emulsion, with Sugar and the Yolk of an Egg. It is very restorative, and good to strengthen the *Vesiculae seminales*, and to stop old Gleet and Strains in either Sex.

The only official Preparation of this *Balsam* is the *Syrupus Balsamicus*. *Miller's Bot. Off.*

It is good to deterge and consolidate Wounds; it resists a Gangrene, strengthens the Nerves; is good for a Rheumatism, or a Sciatica, being externally apply'd.

The Dose is from one Drop to four Drops. *Lemery des Drogues.*

Geoffroy adds, Being held in the Mouth, it has no Acrimony, in which it differs from all the rest; and for that Reason it is

prefer'd for internal Use; being given from six to eight Grains. *Geoffroy.*

The *Balsamic Syrup* is thus made:

Take of *Balsam of Tolu*, two Ounces; and twelve Ounces of Spring-water, or any of the Pectoral Waters: Boil them together in a circulatory Vessel, well luted, in a Sand-heat, for two or three Hours. When the strain'd Liquor is cold, dissolve in it twenty Ounces of fine Sugar, so as to make it into a Syrup, without any Heat.

This hath not been received by the College till the last Emendation of their Dispensatory, but is added by *Shipton* to their former, amongst his *Addimenta*. The Manner of Boiling is very justly contrived to prevent any Loss of the finer Parts by Exhalation, which it would suffer in an open Heat. *Quincy's Dispensatory.*

BALSAMUM PERUVIANUM.

The next I shall consider, is that which is brought from *America*, and *New Spain* in *Mexico*, and is call'd *Peruvian* and *Indian Balsam*; the various Species and Differences of which are enumerated by *Pomet*, in his History of Drugs. It is, however, commonly distinguish'd into two Sorts, the White, and the Black. The former is accounted the best, and is, by way of Eminence, call'd the *Balsam of Incision*; because, according to *Monardus*, it flows spontaneously from a Tree of a large Size, upon making a slight Incision in it. It is limpid, of the Consistence of Turpentine, of a fragrant Smell, and much scarcer and dearer than the black Sort; but we are to take care, that it is not adulterated with *Penice* Turpentine, and sold for the genuine *Balsam*. The black Sort, of which great Quantities are imported to us, is, according to *Clusius* in his *Comment. in Alnardum*, prepar'd and extract'd by boiling the Branches, Bark, and Leaves of the Tree. The genuine Sort is of a brownish Colour, of a penetrating and fragrant Taste and Smell: It is also fluid, and the Whole of it is quickly dissolved in highly rectified Spirit of Wine. But it is to be lamented, that this very *Balsam* is, in our own Days, so commonly adulterated, in all Probability with liquid Storax, or perhaps with the Fees which remain after the Preparation of *Peruvian Balsam*, that it is scarce to be found genuine any more in the Shops. That which is adulterated, may be easily distinguish'd from the true and genuine Sort; for the former is thick and coagulated, wants the penetrating Smell and Taste, and is with the greatest Difficulty dissolv'd in Spirit of Wine, but remains like a thick and cleous Magma. But of the true Sort very elegant Medicines are compos'd; for when it is dissolved in highly rectified Spirit of Roses, it affords an Essence of excellent Qualities. When one Part of this *Balsam* is intimately mix'd, in a Mortar, with an equal Weight of Salt of Tartar, and highly rectify'd Spirit of Roses is pour'd upon it, upon being subjected to Distillation in a Sand-heat, it affords a fragrant and delicate Spirit, which is a Medicine of singular Efficacy, especially if exhibited in a Solution of Amber or Musk. This Medicine, used internally, restores lost and impair'd Strength; and, being very friendly to the nervous System, it powerfully contributes to remove those Disorders which arise from its Weakness. An extemporaneous *balsamic Syrup*, of many and great Uses, may be made, by mixing an Ounce of it with one Pound of Julap of Roses. This Syrup is conveniently mix'd with stomachic and cephalic vinous Spirits: It also gives a grateful and agreeable Taste to Potions and Mixtures. If *Peruvian Balsam* is distill'd with the Worm and Refrigeratory, it not only gives the Water a grateful Smell, like that of the *Balsam itself*, but also renders it nervous and diuretic. This Water, liberally drank, is of excellent Service in chronical Disorders, arising from the Scurvy, and a Weakness of the Nerves. 'Tis curious to observe, that on the Top of this Water swims an ethereal and very sweet Oil, which quickly incorporates with highly rectified Spirit of Wine.

The white *Peruvian Balsam* is thus distinguish'd.

Balsamum Peruvianum album, seu Styrax alba, Ind. Med. 18. *Huacox vel Balsamifera*, 11. Hern. 52. *Balsamum album*, Park. Theat. 1570. *Balsamum Peruvianum album*, Geoff. Traët. 349. WHITE PERUVIAN BALSAM.

The black *Balsam* is thus distinguish'd.

Balsamum Peruvianum, Offic. Ind. Med. 17. Mont. Exot. 12. *Balsamum Peruvianum nigrum*, Park. Theat. 1570. *Balsamum ex Peru*, J. B. 1. 294. *Huitziloxitl seu Arbor Balsami Indici, sive Balsamifera*, Hern. 1. 51. *Huitziloxitl Mexicanorum*, Jonsl. Dendr. 309. *Balsamum Huitzochitl*, Laet. Ind. Occid. 224. *Caburiba*, Marcg. 137. *Cabureiba Pison*, (Ed. 1648.) 57. *Cabureiba sive Balsamum Peruvianum*, Fould. (Ed. 1657.) 119. THE NATURAL BALSAM-TREE.

This black *Balsam of Peru* is of a warming, strengthening Nature, comforting the Brain, and nervous System; is useful in Asthmas, the Colic, and Pains in the Stomach and Bowels.

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Outwardly used, it strengthens the Nerves, helps the Cramp, and all kinds of Convulsions, and Contractions of the Sinews, old Aches and Pains; and is very serviceable in Cuts, and green Wounds. *Miller's Bot. Off.*

Pomet informs us, that the *Portuguese* make an artificial *Balsam of Peru*, which they sell to the *Dutch*.

Hoffman gives the following Processes on the *Peruvian Balsam*.

That the *Balsam* imported from *Peru* in *America* is possess'd of very singular and efficacious Qualities, is sufficiently obvious from its fragrant Smell, and aromatic Taste. It was at first only used as an external Medicine; but, in Process of Time, some Physicians and Chymists began to use it internally, sometimes mixing it with Pills, at other times dissolving it in highly rectified Spirit of Wine; and on other Occasions incorporating it with Sugar, or any other Ingredients they thought most likely to answer their Intention.

But, as far more powerful and efficacious Remedies than these may be obtain'd from it, by the Assistance of Chymistry, I shall here give an Account of the Processes I subjected it to.

First, by distilling it with common Water, with the Worm, I obtain'd a highly fragrant Oil, of a reddish Colour, and entirely free from all Empyreuma; but 'tis to be observed, that half a Pound of the *Balsam* scarce afforded half an Ounce of this Oil, which dissolves in highly rectified Spirit of Wine, of which it requires a large Quantity to procure its Solution. When dissolved in highly rectified Spirit of Roses, it is very properly mix'd with the Essences of Amber, Ambergrise, and Aloeswood, since by its means their balsamic and corroborative Virtues, in Diseases arising from a Weakness of the nervous System, are considerably increased and improved.

Secondly, from *Peruvian Balsam* I prepar'd a most pure and delicate Spirit, in the following manner: I intimately mix'd two Parts of the *Balsam* with one Part of Salt of Tartar, by means of Trituration and Levigation, adding a sufficient Quantity of the best Spirit of Roses. Then I subjected the Whole to a regular Distillation from an Alembic, which was placed in moist Sand: Thus, by carefully keeping up the due Degrees of Fire, I drew off the Whole of the Liquor to Dryness. By this Process I obtain'd a Spirit of a fragrant Smell, and grateful Taste, but which was still more valuable on account of its anæsthetic and corroborating Qualities. I also observed, that this Spirit was very efficacious in promoting a Discharge of Urine, a Circumstance which renders it highly proper for preventing fabulous and stony Concretions in the small Tubes of the Kidneys. One Dram of this Spirit, mix'd with three Ounces of the Julap of Roses, is immediately converted into a balsamic Syrup of singular Efficacy, and which is to be justly prefer'd to all other Syrups, on account of the delicate and grateful Taste it communicates to Medicines.

Thirdly, I have, for several Years past, made very frequent Use of a volatile balsamic Spirit, prepar'd by an Affusion of highly rectified Spirit of Wine, upon a Mixture of equal Parts of the volatile Salt of Ivory, Salt of Tartar, and *Peruvian Balsam*. This Spirit, on account of its discutient and diaphoretic Virtues, and its Efficacy in restoring Strength, and a due Tone, to the Parts, is used with uncommon Success, in those Disorders incident to cold Constitutions, where 'tis proper to excite a brisker Motion in the Mass of Blood and Humours, and augment Transpiration; and I do, with good Reason, affirm, that it is far preferable either to the Spirit of *Rosinus*, as 'tis call'd, or to the balsamic Spirit. *Hoffmanni Observ. Physico-chym.*

The Manner of making artificial BALSAM of PERU.

Take fine Turpentine, white Frankincense, of each one Pound; Oil of Ben, Olibanum, Labdanum, Gum Elemi, of each six Ounces; Lavender-flowers and Nutmegs, of each four Ounces; Spikenard, Wood of Aloes, and Dragon's-blood, of each one Ounce and a half; the small Valerian, Orrice, long Birthwort, Acorus verus, Mace, Benjamin, Storax, of each one Ounce; Zedoary, Galingals, Cloves, Cinnamon, Castor, and Maslich, of each six Drams: Powder all the Drugs grossly; then melt the Turpentine, Frankincense, Gum Elemi, and Oil of Ben, over the Fire; and, when they are dissolved, incorporate the Powders; and when they are made into a Paste, put them into a Glass Retort, whereof one Part is empty; and, after it is well luted and dried, set it upon a Sand-furnace; and, when the Matter begins to heat, there will flow a clear Water, then an Oil of the Colour of Gold, at last a black Balsam, tending to Red, which some would have to be what we sell by the Name of *Black Balsam of Peru*. The Water is proper to be taken inwardly, by those who have the Falling-sickness, Convulsions, Weakness of the Stomach, and to correct Wind. The Oil is good for the Palsy, Nerves that are wounded, Pains in the Joints, rubbing them with it hot. As to the *Balsam*, the same Virtues with that of *Peru* are attributed to it. *Pomet.*

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Foreigners, who read the Advertisements in our News-papers, may reasonably be surpris'd at our Bills of Mortality; for there is scarcely a Distemper incident to human Nature, but, according to the Proprietors of advertised secret Remedies, may be cured easily and effectually by some or other of their Medicines, which are always taken from some Medicinal Writer. There are at least ten different People in Town, who get a very handsome Subsistence by selling a secret *Balsam*; which is the same as, in many Families, goes by the Name of the *Jesuit's Drops*, or *Frier's Balsam*. It is much celebrated in foreign Countries, by the Name of *Baume de Commandeur de Berne*; and is really an admirable Medicine.

Pomet gives the following Receipt for its Preparation, which is said to be the best known.

BALSAMUM COMMENDATORIS, or The BALSAM of the Commander of BERNE.

Take dry *Balsam of Peru*, one Ounce; Storax in Tears, two Ounces; Benjamin in Tears, three Ounces; Aloes Succotrine, the best Myrrh, Olibanum in Tears, Roots of *Bohemian Angelica*, Flowers of St. John's-wort, of each half an Ounce; Spirit of Wine, one Quart: Beat all together, and put them into a Bottle well stopp'd, which hang in the Sun during the Dog-days; at the End of which Time the Whole must be pass'd thro' a Linen Cloth, and used for the Purposes under specified:

First, all Gun-shot Wounds, and such as are made with sharp Instruments, if they are not mortal, are cured in the Space of eight Days, by the Application of this *Balsam*, either with a Feather, Cotton, or by way of Injection, provided the Wound has been first of all dress'd with it, and no other Medicines have been used; for when the Wound is at first dress'd with it, no Pus will afterwards be form'd; whereas the Generation of Pus is always the Effect of Dressing with the ordinary Medicines. There is no Occasion either for Tents or Plaisters when this *Balsam* is apply'd, especially at the first Dressings. Upon its first Application to the Wound, it creates an intolerable Pain; but that soon goes off, and is no more felt. This *Balsam* is so admirable a Remedy for the Colic, that if four or five Drops of it are intimately mix'd with a Glass of Wine, and drank, the Patient's Indisposition is soon after removed. It is also a sovereign Remedy for the Gout, when apply'd to the Part affected with a Feather or Cotton. In a Tooth-ach it is of singular Service, when Cotton, soak'd in it, is apply'd to the Tooth affected. All sorts of Ulcers, as also Cancers and Chancres, are cured by it. It is effectual against the Bites of venomous Animals, those of mad Dogs not excepted. It prevents Pitting by the Small-pox, if the Pustules are anointed with it as soon as they appear on the Face; for it dries them before Pus is form'd in them, upon which Circumstance the Pitting depends. It proves an excellent Remedy for the Hemorrhoids, if they are rubb'd with it when the Patient goes to Bed. It is excellent for Desfluxions and Bruises, if the Parts affected are anointed with it. Five or six Drops of it, exhibited internally, in four or five Spoonfuls of Broth, prove an excellent Remedy for the Purple Fever. It is also good for sore Eyes, when put into them with a Feather. It is also excellent for Pains of the Stomach; in which Case, if the Patient is feverish, he must take it in Broth; and if not, in Wine. It cleanses the Stomach, and procures an Appetite. It must never be warm'd, but always be apply'd cold, and it becomes dry as soon as it is apply'd to the Part affected. Five or six Drops of it, taken in Wine or Broth, are very proper for provoking the Menfes, when defective; and giving a Check to them, when too luxuriant. When we pour out any Quantity of this *Balsam*, we must stop the Phial immediately after, to prevent its Evaporation. If any Wound has been previously dress'd with other Medicines, it must be wash'd with warm Wine before the Application of this *Balsam*, which will cure it effectually, tho' not so speedily as if the *Balsam* had been used at first. It cures Fistulas, however old, and in whatever Parts of the Body. Five or six Drops of it, exhibited in white Wine, or in three or four Spoonfuls of Broth, are an excellent Remedy for Fluxes and Hemorrhages. It is good for the Pricking of Horses, when shoed: By pouring a Drop or two into the Hole from which the Nail is drawn, it is cured immediately.

BALSAM OF CAPIVI.

I now come to take a View of the *Balsam of Capiui*, or *Copaiba*, which has universally acquired so uncommon a Reputation. It is produced in *Brazil*, and brought to us in Earthen Vessels by the Way of *Portugal* from *Rio de Janeiro*, *Pernambouc*, and *St. Vincent*. It is of a whitish-yellow Colour, and of a fluid, resinous, and balsamic Consistence, like *Venice Turpentine*. It is of an acrid and somewhat bitter Taste, and flows from a Tree of a moderate Size, upon making an Incision into its Bark. Ray calls this Tree the *Arbor balsamifera Brasiliensis fructu monosperma*. Two Sorts of this *Balsam* are brought to us, one of which is a limpid Liquor, which flows from certain Trees in a Province of *America*, called *Copaiba*, when they are perforated

perforated or pierced to the Pith; and this Sort is of a fragrant and very grateful Smell, and of a Taste somewhat acrid. The other Species is thicker, and of the Consistence of Turpentine. But this Difference depends on the different Times of gathering it; for that which flows out immediately after the Incision made in the Tree, is very clear, white, and of a resinous Smell. But that which follows it is of a Colour approaching nearer to that of Gold, and of a thicker Consistence; for which Reason it was first called a *Balsam*: And this last-mentioned Sort is what I said was brought to us in great Plenty from *Portugal* in Earthen Vessels, but the other Species is thinner and scarcer.

The Limpid is most highly esteemed, and thought best, both for internal and external Uses. When dissolved with Tincture of Tartar, it is successfully exhibited internally for a Fluor Albus, Gonorrhœa, and Disorders of the Kidneys and Bladder. Externally it is a fine Liniment, and much used for consolidating Wounds and Ulcers, and corroborating the nervous Parts, which have been weakened by the Shock of some Disease. Its Virtues principally depend upon the large Quantity of Oil it contains, as is obvious from the following Experiment:

I took one Pound of the best Sort of the *Balsam of Capivi*, and pouring four Measures of Water upon it in a Still with a Worm, and with a proper Degree of Fire, drew off six Ounces of an Oil of a pretty penetrating Taste, and pleasant Smell, of a greenish Colour, and a pretty good Consistence. As I never knew an Instance of this *Balsam's* being subjected to Distillation before, I could not help being surpris'd at the large Quantity of subtile and ethereal Oil it contained, especially since from the black Sort of the *Peruvian Balsam* a very small Quantity of Oil was obtained, when it was subjected to Distillation by the Worm; which is a pretty palpable Proof, that this *Balsam of Capivi* is of a very warming Nature. After the Distillation was at an End, there was a resinous thick Mass left in the Bottom of the Still, which, when put upon live Coals, diffused a pretty grateful Odour; and I am of Opinion, that it would be a very proper Ingredient in such Plaisters as are designed for corroborating the nervous Parts. Though the *Balsam* itself is possessed of very signal Virtues, yet I discovered still more exalted and efficacious Qualities in this distilled Oil: I mixed some of it with a double Quantity of human Fat, which, when apply'd by way of Liniment, wonderfully strengthen'd paralytic Parts, and such as were deprived of their Tone, Sensibility, and Motion.

Nor is it less beneficial and serviceable, when apply'd to Parts which are weakened, and become unfit for Motion, in Consequence of gouty Pains. From it also excellent vulnerary and pectoral *Balsams* may be prepared for internal Use, by mixing it with well-prepared Oil of St. John's-wort, Sperma Ceti, and Oil of the Yolks of Eggs, adding a few Drops of the Oil of Sassafras-wood, Mace, and Fennel. When the *Balsam* is thus prepared, it is to be exhibited either in an Emulsion, or in Asses or Goats Milk. I don't in the least doubt, but if this *Balsam* was judiciously used, Patients who labour under Impostumations of the Lungs, and Ulcerations of the Kidneys, Bladder, and Prostate, might receive very sensible Relief from it.

This Oil is very speedily dissolved in pure Spirit of Wine, but four Parts of it are required to one of the Oil, that the Solution may be the more thoroughly made. If instead of the Spirit of Wine Tincture of Tartar or acrid Antimony is used, and Spiritus Nitri dulcis added, a Medicine is produced which strongly provokes Urine, and is of singular Efficacy in Rheumatic Disorders and Cachexies. An Electroaccharum of a *balsamic* Nature, and a more grateful Taste, may be prepared from it, which, when taken in *Spanish* or *Hungarian* Wine, is an excellent Remedy in Cases where the Stomach has lost its Tone, in Coughs which rend the Breast, and when the Intestines are too much relaxed or distended with Flatulencies; it is also of singular Service in paralytic Disorders.

I must not on this Occasion forget another Use of this *Balsam*. As I found that it abounded so much with a fragrant Oil, I made the following Experiment with it:

I poured half a Pound of it upon Lavender-flowers, as also upon Rosemary, by which means I obtained a large Quantity of Oil, which in Flavour and Taste differed very little from the purest Oils extracted from these Substances.

Hence 'tis sufficiently plain, that this *Balsam* may be more commodiously used than Turpentine, for increasing the Quantity of ethereal Oils in Distillation: Yet I do not advance this with a View to persuade any one to follow this Practice. *Hoffman's Observ. Chym.*

The Tree producing the *Balsam of Capivi* is thus distinguished:

Capivour, Offic. Pharmacopol. *Balsamum Copaiba*, Ind. Med. 18. *Balsamum de Copaiba*, Mont. Exot. 12. *Copaiba*, Pison. (Ed. 1648.) 56. (Ed. 1658.) 118. *Jonf. Dendr.* 309.

Raii Hist. 2. 1559: *Arbor Balsamifera Brasiliensis, fructu monospermo*, Ejusd. *Copaiba Brasiliensis*, Marcg. 130. *Balsamum album*, Park. Theat. 1570. *Balsamum certarum quarundam plantarum, quas Copaibas vocant*, J. B. 1. 306. *Balsamum Copaiba*, Geoff. Tract. 348. THE WHITE AMERICAN BALSAM-TREE. Dale.

When this *Balsam* is new, it is of the same Colour and Consistence with Oil of sweet Almonds, and smells like the *Calambour* Wood, but the Taste is a little acrid and bitter.

Fuller says, That when given in the Quantity of two Drams, it purges very well, and gives a very bitter Taste to the Urine. A Liniment may be made with two Parts of Spirit of Wine, and one Part of this *Balsam*, very proper to be used in Rheumatisms and Palsies. *Geoffroy*.

Pomet gives the following Account of Baume Nouveau, NEW BALSAM.

The New *Balsam* in Colour and Shape is very like that of *Tolu*, but of a much less agreeable Smell. This *Balsam* is made after the same manner as the Oil of Bays, from a little red Fruit, that grows in Clusters upon a kind of Tree, the Leaves whereof are very large and broad, green above, and greenish underneath, which grows in the *West-Indies*, especially in the Island of *St. Domingo*. This *Balsam* is so very scarce in *France*, that there is very rarely any of it to be seen. *Pomet*.

Among the several Simples of the *balsamic* Kind, we may justly reckon liquid Amber. It drops from a Tree of *Mexico*, called the *Arbor Styracifera*, upon an Incision being made into its Bark. It is an oleus, resinous, and pinguous Liquor, of the Consistence of *Venice* Turpentine, of a reddish-yellow Colour, of an acrid, aromatic, and oleous Taste, approaching pretty much to that of *Storax Calamita*. Its Essence, extracted with Tincture of Tartar, or tartarated Spirit of Wine, strengthens the Head, and nervous System. There is also distilled from it with Water, by the Worm, a thin and fragrant Oil, which is of singular Efficacy both for internal and external Uses. See AMBRA.

Having taken a View of the liquid *Balsams*, with which Nature has bountifully supply'd us, I come in the next Place to consider those which are of a more dry and solid Nature, such as the resinous fragrant Gums, impregnated with an agreeable Oil: Of these the principal are Benzoin, pure Storax Calamita, Ladanum, Myrrh, and Mastich. These are produced by making an Incision in the Bark of *Balsam-bearing* Trees, which are always green, at the hottest Season. From these Trees a tenacious Liquor drops, which becomes gradually more solid, as its humid Parts are exhaled by the Heat of the Sun; for which Reason these resinous Gums are justly called dry *Balsams*, because in all Points they agree with *Balsams*; for their whole Substance is inflammable, they have a fragrant Smell, they are of a penetrating Taste, they are dissolved, though not totally, in highly rectified Spirit of Wine, and yield an Oil, when subjected to Distillation.

And, first, as to the Benzoin, it is produced by a Tree of *Sumatra*, called the *Arbor Benzoinifera*. The purest Sort of it is white, and in highly rectify'd Spirit of Wine is dissolved into an Essence, which, when poured into Rose-water, makes a very elegant cosmetic Milk. This Gum, by an easy Sublimation in a Pot, is raised in Flowers. If it is boiled in Water, and the Decoction inspissated, beautiful shining Flowers fall to the Bottom, which are not only of great Service internally for promoting Expectoration in *Asthmas*, and removing Obstructions of the Lungs by their subtile acrid Quality, but also by stimulating the Nostrils they excite Sneezing. Besides, Benzoin is the principal and most important Ingredient in the best and most efficacious Fumigations; and when duly mixed with an Extract of Benzoin, with the Addition of some odiferous Oils, and a little Civet, it makes that *Spanish* Mass which is so much esteemed for the Delicacy and Fineness of its Smoke. See BENZOINUM.

Styrax, or, as 'tis more frequently written in *Latin*, *Storax*, is of the same Nature and Qualities with Benzoin. It is found in *India*, and, according to *Lobelius*, in some Parts of *France*. It flows from a Tree which has Leaves like those of the Quince-tree, and a Trunk like that of the Birch, in the Form of Icicles, from which Circumstance *Lobelius* thinks that it received the Name of *Styrax*, though his Opinion does not seem to be sufficiently authorized. The purest Resin is called the Tears of the *Styrax*. It is very odorous, and divided into Grains and Lamp. It is also called *Calamita*, the Reason of which Name *Strabo* gives in his twelfth Book, which is, because it flow'd from a Tree excavated and hollow'd like a Reed. The impure Sort is a Magma of a reddish Colour, in which there is often an Intermixture of Straws and Leaves; and this Sort of it seems to be obtained, by boiling the several Parts of the Tree, especially its Branches, Bark, and Roots. We use to obtain the Resin from this *Storax* two ways, either by Expression, after having macerated it sufficiently with a little Wine; or by means of highly rectified Spirit of Wine. See STORAX.

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Mastic is a Resin of a pale-yellow Colour, pellucid, of a resinous aromatic Taste, and of a highly fragrant Smell. It flows from an Incision made in the Bark of the Berry-bearing Mastic-tree, of which there is great Plenty in the Island of *Chios*. That produced in *Chios* is the best; for that with which *France* supplies us is coarser and less pure. We have prepar'd a Spirit of singular Efficacy, by distilling rectified Spirit of Wine from two Parts of Mastic intimately mixed with one Part of Salt of Tartar. By this Process a most fragrant Spirit is obtained, which is of great Service in corroborating the Stomach and nervous System, and in exciting a Discharge of the Urine; for the Salt of Tartar proves an excellent Key, if I may so speak, to resinous Substances; since by its means their subtile volatile Oils are separated and disentangled from their viscid earthy Particles, and left at full Liberty to exert their Qualities. See MASTICHE.

Ladanum is also a resinous balsamic Concretion, wrapt up in a spiral Form, of a somewhat bitter Taste, and of a grateful fragrant Smell, especially when 'tis set on Fire. In *Spain* and *Crete* the Inhabitants gather this Gum from the Leaves of the true Ladaniferous Shrub. There are many small Grains of Sand mixed with it, because the Trees producing it grow in sandy Soils. With Spirit of Wine a most pure Resin is extracted from it, which either in a liquid or solid Form is of singular Efficacy in strengthening the Nerves; and I myself have often had Experience of its Virtues in severe and obstinate Head-achs. See LADANUM.

Gum Elemi comes next under our Consideration, which is resinous, lucid, of a whitish-yellow Colour, ductile like Wax, of an aromatic Taste, and fragrant Smell. It flows from Incisions made in the Bark of the Myrobalan-tree, produced in the Island of *Ceylon*, the Inhabitants of which Place kindle it in their Lamps, and use it by way of Lanthorn. From this Gum, with Water by the Worm, a very penetrating Oil, which is of singular Service, both internally and externally used, in Gonorrhoeas, Wounds, and Ulcers, is distill'd. See ELEMEL.

To the dry Balsams belongs also *Myrrh*, especially the purer Sort, which is intermixed with pale Spots, and is of an acrid aromatic Taste, and of a fragrant Smell. It drops from a Berry-bearing Tree called *Pala*, which grows in the Deserts of *Arabia*. This is best and most properly given in Substance, mix'd with Sugar-candy, for removing all Putrefaction, especially of the Lungs. It is also an Ingredient in the most valuable Compositions, such as the Elixir Proprietatis, the Pilulæ Ruffi, the Pilulæ Avicennæ, all the pompous Antidotes of the Antients, and in short in Pills almost of every Kind. It is better to use it in Substance internally, than by way of Essence; because these are of a hot Nature, and generally put the Blood into too violent Commotions; but it is more temperate in Substance, by reason of some mucilaginous and gummy Parts mixed with it. Its Essence externally used is of considerable Service in the Cure of putrid Ulcers. See MYRRHA.

Having taken a View of the balsamic Gums and Resins, it now remains, that I direct my View to those Woods which are impregnated with a balsamic Principle. Among these, the first Place has universally been assigned to Aloes-wood, otherwise called *Xyloaloes*, the Whole of which is resinous, of an aromatic and bitter Taste, and of a fragrant grateful Smell, especially when reduced to Powder. It is the interior Substance of an *Indian* Tree, called *Calambach*. Its Resin is extracted with highly rectified Spirit of Wine, and formed either into cephalic Pills or Powders. And its resinous Essence, which is of the same Efficacy, when mixed with Tincture of Mars, constitutes a balsamic Tincture of Mars, whose Efficacy in removing Weakness of the Viscera in hypochondriac Disorders is highly esteemed. Besides, I formerly have prepared, by Distillation with the Worm, a Water of the Shavings of Aloes-wood, upon which a fragrant Oil floated, which, by being exposed to the Cold, was converted into a white Coagulum like Camphire. This Coagulum, dissolved in highly rectify'd Spirit of Wine, afforded an Essence of singular Virtues in strengthening the Brain, and repairing the Weakness of the Nerves. See AGALLOCHUM.

The *Lignum Rhodium* deserves to be next considered. Its Root is resinous, and of an aromatic Taste, and a fragrant rosy Smell. It grows in the *Canary-Islands*, and, when subjected to Distillation, yields a very fragrant Oil, the Use of which is highly extolled among the scented Balsams. Nor is it to be deny'd, that the Essence of the Root of the *Lignum Rhodium*, as also a Decoction of it in Water, are, by reason of their balsamic Resin, of singular Efficacy in Disorders of the Lymph, and Diseases arising from them, in a *Lues Venerea* itself, and a remote and deep-seated Corruption of the Humours. See RHODIUM and ASPALATHUS.

The next in Order is the yellow Sanders, which abounds with a fragrant Resin: This is plain, from the Spirit of Wine drawn off this Wood, which smells almost like Amber. And if the Extract is made with rectified Spirit of Wine, and the Essence drawn off by a gentle Heat, a most fragrant oily Liquor remains, of the Consistence of *Peruvian Balsam*. A Decoction of this

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Wood is highly to be valued on account of its penetrating Resin. See SANTALUM.

Of the balsamic Barks, the principal are the Bark of the Sassafras-wood, *Peruvian-bark*, *Winter's-bark*, that of *Cascarilla*, and the true *Costus*. They are endow'd with a resinous, balsamic, and subastrigent Principle, which is not only discover'd from their penetrating Taste and Smell, but also from the highly penetrating Oil which these Barks yield upon being distilled with Water.

In the Northern Countries the Juniper-tree is truly of the balsamic Kind; for not only its Wood and Leaves, but especially its Berries, abound with a subtile penetrating Oil, which they yield in great Quantities, when subjected to Distillation by the Worm; and this Oil, when pure and unadulterated, is an excellent Strengtheners of the Nerves, and powerfully promotes a Discharge of the Urine, as most other Balsams do. There is also a Decoction prepared of the Wood itself, which is of singular Use in the Cure of the Scurvy. But besides the Simples already mentioned of a fragrant Smell, and penetrating Taste, with which Nature has bountifully furnished us, Oils also of the same Qualities ought to be ranked among Balsamics, or Balsams: For what else are subtile ethereal Oils, than liquid Resins, or liquid Balsams? For the principal Element, which is the Source of the fragrant Smell, the penetrating Taste, and healing Quality, by which all Balsams, whether liquid or solid, act, is no other than a subtile volatile Oil, which being taken away, the Substances in which it was lodg'd become effete and useless.

For this Reason it may be asserted for Truth, that all those Aromatics which in Distillation yield a fragrant and penetrating Oil, such as Cinnamon, Cloves, Nutmegs, Mace, Cardamoms, Cubebs, Lemon and Orange-peels, are justly to be ranked among the principal of the Balsamics; for this very Reason *Palerius Cordus*, in his Dispensatory, orders Oil of Cloves to be used as a Succedaneum to the *Opobalsamum*, in all the Antidotes in which it is ordered for an Ingredient. "There are not," says he, "in our Days, *Opobalsamum*, *Carpobalsamum*, and *Xylbalsamum*, to be found, which come up to the true Descriptions given us of them. But as we are taught by Experience, that the Oil of Cinnamon and Cloves distill'd in our manner, of which the Antients were ignorant, are equal in their Virtues to the true Balsam; for this Reason we have, in our *Theriaca*, substituted the Oil of Cloves instead of the *Opobalsamum*. It would not be improper to substitute, instead of *Carpobalsamum*, Cubebs or Cloves, or Cardamoms, and Aloes-wood, instead of the *Xylbalsamum*."

These aromatic Oils, then, are subtile spirituous Balsams, of so uncommon Virtues and Efficacy, that the other oriental Balsams can scarce be expected to come up to them; for these produce their Effects only by a subtile Oil: Neither is it difficult to reduce these very penetrating and liquid Oils, either to the Consistence of a Balsam, or to the Form of a Resin, provided a concentrated acid Spirit, such as Oil of Vitriol, be duly mixed with them.

In our own Country there are also spirituous Balsams of this Kind, which, both on account of their Virtues and Fragrancy, render it a dubious Point, whether they are not of equal Value with the oriental Balsams, and aromatic Oils. And these Balsams produced in our own Country are Oils distill'd from aromatic Herbs, of a fragrant Smell, and penetrating Taste. The principal Herbs of this Kind are Rosemary, Lavender, common Spike, Marjoram, common and *Turkish* Bawm, Basil, Mother of Thyme, *Roman* Chamomile, and all the Species of Mint, Water-mint, Costmary, Field and Mountain Calamint, curl'd Mint, that *Origanum* commonly call'd the wild Marjoram. These Herbs, when duly distill'd, yield very fragrant and efficacious Oils. But as these Oils are rarely to be met with pure in the Shops, but are adulterated in their Distillation with Turpentine, it happens, that they do not discover that Efficacy of which the genuine Sort are possessed, in corroborating the Tone of the Nerves, and of the other solid Parts. They are most conveniently used when dissolved and reduced to Essences; and *Quercetan*, in the End of his *Pharmacopœia Restituta*, has these remarkable Words concerning them: "In Germany an Expedient is lately found for reducing the penetrating Oils into pure and grateful Essences, which preserve the Colours, Smells, and Tastes, of the particular Oils, without any other Mixture than the celestial *Manna* well purified, which extracts the Virtues of these Oils, and by its Admixture proves an excellent Corrector to them." There is no Doubt but the Menstruum, so highly commended by this Author, is highly rectify'd Spirit of Wine, prepared according to Art, for a thorough Dissolution of these Oils.

From what has been said, I think it plainly appears, that the Vegetable Kingdom supplies us with the noblest and most efficacious Balsams, which, when skillfully used, are of singular Service in curing Diseases, and preserving Life and Health. Neither is it, in the last Place, to be forgot, that the balsamic Plants and Trees, produced by the bountiful Parent of the human Race, for their Comfort and Preservation, are distinguished,

guished, as it were, by an external Mark or Characteristic, expressive of their latent and inherent Efficacy against Corruption, and consequently of their *balsamic* Nature; and this Characteristic is, that almost all of them flourish perpetually; and are what we call Ever-greens. We are also on this Occasion to inquire, whether Heaven, who in all her Measures consults the Interest of Mankind, has not hid *Balsams* for the Preservation of the human Species under the Earth, and in the Bottom of the Sea. If then we diligently inquire into the Natures of the Bodies lodged there, we shall find two dry *Balsams* hid under the Earth, and diffus'd thro' the Seas; which seem to vie with the other *Balsams* procur'd from the Vegetable Kingdom. These are *Ambergrise*, which in the Eastern Countries is very fine, and had in great Esteem; and the *Amber* produced in Northern Climates. Both of them furnish us with *balsamic* Medicines, which produce very instantaneous and speedy Effects. As for *Ambergrise*, it is a most fragrant, resinous Substance, the Whole of which is dissolved in a particular Menstruum, and reduced to a valuable Essence, which is free from all Precipitation or Coagulation of the *Ambergrise*. It powerfully restores lost Strength, is of a refreshing Nature, and by its grateful Exhalations mitigates Pains, and procures sound and uninterrupted Sleep. It is also wonderfully agreeable when mixed with spirituous Waters, or Waters impregnated with Sugar. But the *Amber*, which abounds with a subtle, fragrant Oil, closely sheath'd up in its viscid earthy Parts, with Difficulty yields its Oil, when distill'd with Water; but requires a strong Fire immediately apply'd to it, to which it at last yields, and affords a large Quantity of an empyreumatic Oil, which, when rectify'd, and sufficiently depurated, may nevertheless be used with great Success in Physic. But I know a Method of extracting from *Amber* a fragrant Oil, without destroying the Texture of the *Amber*. This Oil is procur'd by heating it with well-calcin'd Salt of Tartar, adding highly rectify'd Spirit of Wine, and subjecting the Whole to Distillation: Thus a very fragrant Spirit is obtain'd, which is of great Service in Weakness of the Nerves. If we again pour this Spirit upon pure *Amber*, mixed with Salt of Tartar, an Essence much more fragrant, and more penetrating, than the common Essence, rises on the Top.

These then are the natural *Balsams* known to us, which are certainly fine Preservatives of Life and Health; and from which a skilful Physician may, by a judicious Mixture of other Substances prepare the best and most efficacious Medicines. For this very Reason we find the best of the Greek and Arabian Physicians, mixed their most valuable Antidotes with these Oils, as we see in the Dispensatory of *Valerius Cordus*, the *Pharmacopœa Augustana*, the *Pharmacopœa Schræderi*, and in several other Books of a like Nature; and generally almost all the above-mentioned *balsamic* Species are made Ingredients in the *Theriaca Andromachi*, and the *Mithridate*. *Mesue* also, and *Nicolaus*, made much Use of these Species, especially as Cordials, as appears from *Mesue's* Description of Cloves. See in the Dispensary of *Val. Cordus*, the *Species Diambrae*; the *Species Cinnamomi* of *Mesue*, the *Species Diastolales*; the *Aroca alexandrina* of *Nicolaus*, and the *Species Diacastorei*, of the same Author.

Besides, these *balsamic* Species were with Success join'd by the Antients to laxative and purgative Medicines; for they thought, that the violent Strength of Purgatives was unfriendly to Nature, and stood in need of a Corrector, which might strengthen and corroborate her. For which Reason the *Electuary* of *Mesue*, (see *Cordus*) the *Diasena* of *Nicolaus*, his *Hiera Picta*, the *Hiera Simplex* of *Galen*, the *Pil. de Hiera Composita* of *Nicolaus*; the *Pil. Hieræ Pictæ Rhafis*; the *Pil. Aleophringinae* of *Cordus*, and the *Pil. Lucis majores*, have in their Composition a very considerable Quantity of the aromatic, *balsamic* Species. And, not to dissemble, these laxative and purgative Compositions of the Antients, provided they had a smaller Quantity of the purgative Ingredients, which I lay down as a general Caution, but especially of the *Aloes*, are far superior to ours in point of Efficacy. And some of the most noted Pills invented by later Authors, such as the *Pil. de Succino Cratonis*, the *Pil. Catholica Poterii*, and the *Pil. Becherianæ*, which are now so much esteemed and corrected in various manners, would never have gain'd that Reputation they now have, unless in them a moderate Dose of the purgative Ingredients, especially of the *Aloes*, was incorporated with *balsamic* Gums, and Extracts of Vegetables.

The *balsamic* Species are also excellent Correctors to Medicines of a stupifying and narcotic Quality. For this Reason we find, that the Antients always mixed them with Opiates; because they imagined, that by their means the cold Qualities of Opium, and other Narcotics, were destroy'd; and the Spirits, when laid asleep by them, roused and render'd active; and undoubtedly the *Pil. de Cynoglossa* could not be so safely used, unless the Root of the Hounds-tongue, the Seeds of the white Henbane, and the Extract of Opium, were mixed with Myrrh, Olibanum, and Resin of Storax. Nor would the *Pil. de Styrace* be so effectual in dissolving acrid Humours in

Coughs and Catarrhs, unless they had at the same time in their Composition *Olibanum*, Resin of *Storax*, Myrrh, and Amber. The *Pil. Wildeganfii* are by having in their Composition a Mixture of the Oil of Cloves, Myrrh, and Aloes, esteemed far more safe than any other Preparations of Opium. The *Ladanum* of *Sydenham*, which is much used, not only in England, but in other Countries of Europe, is not a little corrected by the Addition of these aromatic Substances, Cinnamon, Nutmegs, Cloves, and Spanish Wine. The *Elixir Proprietatis*, invented by *Paracelsus*, and the *Pil. Ruffi*, and *Pil. Avicennæ*, prepared of the same Species, have retained their Reputation for a great while; because by the Addition of Myrrh, which is of a *balsamic* Nature, and Saffron, the cathartic Violence of the Aloes is much corrected and subdued. In the mean time it were to be wished, that all these Preparations of the Antients, in which Aloes is an Ingredient, contained a smaller Quantity of it; since by their sulphureous and volatile Acrimony, they put the Mass of Blood and Humours into too strong Commotions; and in hot Constitutions often do more Hurt than Good. Besides, the *Wemens Waters*, and *Elixirs of Life*, as they are called, the *Balsama Embryonum*, the spirituous apoplectic Waters, the apoplectic Spirits and *Balsams*, and the hot cephalic Waters, which are made up of the best *Balsamics*, Aromatics, and cephalic Herbs, which abound with a subtle, *balsamic* Oil, do from thence principally derive their Virtue in restoring Strength, and corroborating the Tone of the Viscera and Stomach. But, since the Antients Compositions of Medicines, on account of their Ignorance of a just Physical Theory, are, for the most part, improper and trifling, because they were not only unacquainted with the true Causes of Diseases, but also with the Manners in which Medicines operate; hence it is undoubtedly certain, that Medicine being in our Days placed in a fairer and more rational Light, better and more proper Forms of Medicines may be composed. Since then *balsamic* Medicines are, as it were, universal Strengtheners of Nature, and since in every Disease there is a Necessity for comforting Medicines, it will be both profitable and entertaining, on this Occasion, to give some Examples of the Use of *Balsamics*.

First, then, *Balsamics* are very properly mixed with evacuating Medicines, not only in order to correct their drastic Qualities, but that the Force of Nature may be assisted in performing the several Excretions, and that Strength, which Evacuants generally impair, may be preserved. For this Reason they are very properly mixed with Emetics. Thus I use a *balsamic* Emetic Aqua Vitæ, which Patients not only take with Pleasure, but which produces the desired Effect; for it operates quickly and easily, without doing the least Injury to the Appetite and Stomach. But the following may be used as a Succedaneum to it, which consists of spirituous Mint-water, and Cinnamon-water distill'd with Wine, of each half an Ounce; to which two Grains of emetic Tartar, and one Dram of the *balsamic* Syrup, are to be added. This makes a very agreeable Potion to be taken at one Dose.

If any one intends to use evacuating Pills, which shall at the same time be possessed of a corroborating and *balsamic* Quality, he may use the following Form.

Take of the Extracts of roasted Aloes, Cardus Benedictus, and Wormwood, each one Dram; of the Extracts of Rhubarb, Ladanum, and Aloes Wood; and of the Powders of Benzoin, of the best Myrrh, and of the Bark of Cascarilla; and of *Peruvian Balsam* and Nitre, each half a Dram. Let these be mixed up into a Mass for Pills, of which one Scruple is sufficient for a Dose.

If they are required more acrid, let an Addition be made, either of the *Extractum Panchymagogum* of *Crollius*, or of the Resin of Jalap, intimately mix'd with Mercurius Dulcis. When the Nature of the Disease calls for a purgative Infusion join'd to *Balsamics*, the following is a proper Form.

Take of the fibrous Roots of black Hellebore, of the best Rhubarb, and of Zedoary-root, each half an Ounce; of the Troches of Agaric, Cinnamon, Cloves, of the Barks of Sassafras and Cascarilla, of Lemon and Orange-peel, each two Drams. To these add two Ounces of Currants, and of crude Tartar, and Salt of Tartar, each three Drams. When all these are sufficiently mix'd, and beat small, let one Dram of the Spirit of Sal Ammoniac be sprinkled upon them. Then let three Pounds of Wine be poured upon the Whole.

If the Patient labours under hypochondriacal Disorders, Fillings of Steel may, with great Advantage, be added in this Formula. *Balsamics* may also be very properly mixed with Sudorifics. For this Reason the depurated volatile Salt of Hartshorn, distill'd with such an Essence of Amber as I have above described, is of excellent Service in promoting Perspiration, and provoking Sweat; for hence a most penetrating Spirit is produced, which is still meliorated by an Addition of *Peruvian Balsam*. This is so valuable a Medicine, that scarce any

B A L

Sudorific is equal to it. Fifty Drops may be given for a Dose ; but we may venture to go farther, if Circumstances require it.

If any one intends to boil the *balsamic* resinous Woods, and procure their Virtues in a liquid Form, let him use the following Method.

Take of the Shavings of the Woods of Sanders, Rose-wood, Juniper, Sassafras, and Lignum Vitæ, and of the Root of Sassaaparilla, each one Ounce ; of the Roots of Burnet and Angelica, of Cinnamon, Cloves, and Shavings of Aloes Wood, each two Drams ; Mix these sufficiently together, and boil them in a close-stopp'd Vessel.

Many chronical Diseases require a plentiful Discharge of Urine ; for answering which Intention, the following Medicine is of all others most proper.

Mix equal Quantities of the Spirit of Mastich, the Spirit of *Peruvian Balsam*, acrid Tincture of Antimony, and Spiritus Nitri Dulcis. Of this Mixture, half a Dram may be exhibited with singular Advantage.

In Disorders of the Head and Nerves, it is sometimes proper to irritate the Nostribs, in order to extract the Mucus, and excite Sneezing. This Intention is excellently answer'd by the following Form.

Take of the Powder of Majoram, and Basil, each one Dram ; of true Marum, and Shavings of Aloes Wood, each half a Dram ; Flowers of Benzoin, twelve Grains ; Essence of Amber, ten Drops ; Oil of Cloves, four Drops. Mix all together.

It sometimes happens, that in the Cure of Diseases we are to have a regard to the Patient's Strength ; because nothing is more dangerous, or inconsistent with Health, than that the Strength should be too much impair'd. For this Purpose Analeptics are to be used, of which the best may be prepared in the following manner.

Mix in equal Quantities the Spirit of *Peruvian Balsam*, and the Essences of Amber and Musk, prepared with the strongest Spirit of Roses, adding a small Quantity of the Oils of Cinnamon, of Cedar, Bergamot, Turkish Baum, or other Oils of a like Nature.

The Reputation of the *volatile oleous Salts* is very great ; and their Efficacy, when judiciously used, very singular. If you desire to communicate a *balsamic* Quality to them, it may be done in the following manner.

Mix of the Tincture of Tartar, and of the vinous Spirit of Sal Ammoniac, each an Ounce ; add of the Oils of Cedar, Mint, Mace, and Cloves, each ten Drops.

This Medicine is of singular Efficacy in strengthening the Stomach, and restoring the Tone of the Intestines. The stomachic Elixir, which that skillful Practitioner *Michaelis* at *Leipzic* so frequently used, was entirely composed of *balsamic* Ingredients. For the same Reason *Balsamics* enter the Composition of my *balsamic Elixir*, a Description of which is to be found in p. 186. and 882. of my Annotations on *Potterius* ; since the Publication of which Book it has been received into several of the Shops of *Germany*. See ELIXIR, and VITÆ BALSAMUM.

It is sufficiently known how effectual *balsamic* Medicines are in curing the Disorders of the Glands, and removing those Disorders which arise from their too great Laxity, a Defluxion of Humours upon them, or too copious a Discharge of their Contents ; for which Reason the following Medicines are of singular Service in a Gonorrhea and Fluor albus.

Take of the acrid Tincture of Antimony, of the Essences of the *Balsams* of *Meccha*, *Capivi*, *Peru*, and of the Woods, each half an Ounce. Mix all together, and add one Grain of Camphire,

But I must here give a Caution, that neither this Elixir, nor any other Medicines of a like Nature, are to be used till the Body has been sufficiently prepared by necessary Evacuations. If a Medicine is desired in a more solid Form, let Pills be prepared in the following Manner.

Take of the *Balsams* of *Capivi* and *Tolu*, of Amber, Mastich, Olibanum, Japan Earth, Terra Sigillata, Diaphoretic Antimony, and prepared Coral, each one Dram ; Oil of Sassafras, ten Drops.

When these are duly mixed, let them be made into Pills with the *balsami* Syrup. These Pills are surprisingly efficacious in Gonorrheas.

B A L

Balsamics are also excellent Pectorals, because they remove Obstructions of the Lungs, promote Expectoration, and wonderfully strengthen the pulmonary Vesicles. For answering this Intention, the following Formula may be prescribed.

Take of Benzoin, Myrrh, *Peruvian Balsam*, Saffron, Nutmegs, Tincture of Tartar, Gum Ammoniac, each two Drams ; Oils of Anise, Mace, and Fennel, each ten Drops ; Spirit of Sal Ammoniac may also be added at pleasure.

Nor is it improper to make up *Balsamics* in the Form of Pills, with other Ingredients, against an Asthma, for the Use of such as labour under that Disease. Let the following Formula be an Example of this Kind.

Take of Gum Ammoniac, the best Myrrh, Benzoin, Saffron, *Peruvian Balsam*, and Extract of Elecampane, each half a Dram : Add of Powder of Millepedes, and depurated Nitre, each one Scruple.

If any one intends to relieve the Pains arising from the Stone in the Kidneys or Bladder, he may expect considerable Success from *Balsamics* ; and for that Purpose may exhibit one Dram of the following Powder either in Almond-milk, or in Broth.

Take of the Flower of Club-moss, and Seeds of Gromwell, of Peach-kernels, of Liquorice-powder, Crabs-eyes, Amber, and Mastich, each one Dram. Let them be sprinkled with a few Drops of the Oils of Sassafras, Mace, and Juniper.

When the Menfes are disorderly, either in point of Defect or Excess ; or when frequent Abortions, or Sterility, cut off the Prospect of a hopeful Progeny, the relaxed Tone of the Uterus must in these Cases be corroborated, that Nature may be render'd sufficient for overcoming and eliminating whatever is noxious, and providing a proper Receptacle for cherishing and bringing to Perfection the Fœtus. This Intention will, in my Opinion, be excellently answer'd by the following Formula.

Take of the Herbs Pauum, Costmary, Paul's Betony, Penny-royal, Yarrow, Rosemary-flowers, Lavender, and Sage, each an Handful ; add of Lemon and Orange-peel, of the best Myrrh and Juniper-berries, each two Drams. Let all these be macerated in a proper Quantity of Water, or rather Wine, which seems to answer the Intention better.

The Physician is to judge whether the Patient's Case calls for the Addition of a Laxative, of which Class Rhubarb, and the Leaves of Sena, are the most proper.

It now remains, that I say something concerning the vulnerary *Balsams*, since these are of incomparable and extensive Use in Wounds of the Intestines, and when any of the external Parts are corrupted or destroy'd. But I shall communicate to my Reader one, which is of all others the most efficacious both for internal and external Purposes, and which I prefer to the celebrated English *Balsam*, which takes its Name from *Locatellus*. It is prepared thus :

Take of the Essences of Myrrh, Amber, Gum Elemi, red Sanders, *Balsam* of *Peru* and *Tolu*, each one Ounce ; of the Oils of St. John's-wort, Yarrow-tops, and Balsamina Mas. From these intimately mix'd, we draw off the Spirit with a gentle Fire, and what remains we use for the Purposes, and in the Manner, above specified.

We also prepare a vulnerary Essence to be used externally in cleansing and incarning Wounds. It is made

Of equal Quantities of the Essences of Yarrow, St. John's-wort, Myrrh, Amber, Mastich, Gum Elemi, *Peruvian Balsam*, and Flowers of Roses, mix'd together ; we sometimes also add Honey, which proves an Ingredient of considerable Efficacy.

In how great Esteem compound *Balsams* were antiently had, both for internal and external Uses, appears plainly from *Conradus Gesner's Thesaurus de Remediis Secretis*, which proposes many excellent *balsamic* Compositions, prepar'd of Aromatics, Resins, and Gums, of a fragrant Smell, which were highly esteem'd by the Antients. From that Book it plainly appears, that the Time when Chymistry began to flourish, and be diligently cultivated, those *Balsams* were principally in Use, which were procured by Distillation from the noblest Ingredients with which rectify'd Spirit of Wine and Turpentine were mixed. I shall only give one Example of this Kind from *Lully* ; and tho' the Composition wants the Turpentine, yet the rest of the Ingredients are incomparably excellent. It is as follow-

Take

Take of Cloves, Nutmegs, Ginger, Zedoary, Galangals, Pepper, Juniper-berries, Lemon-peel, Sage, Basil, Rosemary, Marjoram, round-leaved Mint, Bay-berries, Pennyroyal, Gentian, Calamint, Elder and Rose-flowers, Bishops-weed, Spikenard, Aloes-wood, Cubebs, Cardamoms, Cinnamon, Sweet-flag, Stoechas, Germander, Bawm, Mastich, Hepatic Aloes, Seeds and Flowers of Dill, and Seeds of Mugwort, each an Ounce; all these are to be put into three times their Weight of five or six times distill'd Spirit of Wine, and to be distill'd by a slow Heat, upon which they yield a pure and precious Water, some of the surprising Effects of which are said to be these following.

If it is pour'd into a recent Wound, there is no Occasion for any other Medicine, since it will heal it in the Space of a natural Day and an half, at farthest, provided it is not mortal. Malignant, old, putrid, and fungous Ulcers, if wash'd with this Water, are heal'd in a few Days. If the Eye is inflam'd, or has a Speck on it, these Disorders are cured in a few Days by dropping a little of it into the Eye affected. In Pains, without an Ulcer, arising from Blows or Falls, let the Part affected be fomented with a small Quantity of it, and the Pain will be removed in the Space of three Hours. Its internal Use was so highly esteem'd, that the following surprising Accounts are given of it: It restores Youth to old Men; it recovers Patients when at the Point of Death, and given over by the Physicians: If a few Drops of it are drank every Day for a Year, with Borage Flower-water, the Patient shall at the Year's-end seem to have his Flesh, Blood, and, in a Word, his whole Body, renew'd. In the above-mentioned Book there are many *Balsams* excellently compos'd, but we are to observe, that almost all of them have Turpentine for an Ingredient, which affords an Oil somewhat ungrateful to Nature, because by its too great Heat it agitates the Blood, and puts it into preternatural Commotions; for which Reason I am of Opinion, that the Turpentine is to be left out of all the *Balsams* and spirituous Waters of the Antients.

I shall here briefly make mention of my own liquid spirituous *Balsam of Life*, which, on account of its surprising and efficacious Qualities, has in many Places acquired an uncommon Reputation. The Efficacy of this Composition consists in a Solution of the purest Oils, and unadulterated *Balsams*, mixed in a due Proportion; and this Purity of the Ingredients is the Reason why this *Balsam* is possess'd of such uncommon Efficacy, as is scarcely to be met with in any other Medicine whatever. See *VITÆ BALSAMUM*.

I now come, in the last Place, to deliver my Sentiments concerning the Virtues and Efficacy of what we call *balsamic* Medicines. I affirm, then, that these are truly universal, and of extensive Use in Physic; and that their Virtues are as great as those of any other Class of Medicines whatever, since they are suited to all Constitutions, easily incorporated with all other Remedies, and exquisitely calculated for subduing and removing almost all Diseases. *Balsamics* have this peculiar to themselves, beyond other Medicines, that they are friendly to the human Constitution, and conspire, as it were, and contract an Affinity, with it. Of this we may easily be convinced, by observing, how speedily Strength, impair'd by chronical Disorders, old Age, or any other Accident, is restor'd by the timely and seasonable Use of *Balsamics*. For this Reason no Medicines are so effectual in Faintings, from whatever Cause, as *Balsamics*; and, in a Word, they wonderfully recruit, restore, and preserve that which is the original Source of Life, and imparts Strength, Pulsation, and Tone, to the Heart, Arteries, and Nerves, whether we call it Principle, Spirit, Soul, or Nature; for they seem to be transform'd into the Nature and Genius of that noble and wonderful Substance, which is the Director and Source of Motion to all our Members; for, in a Syncope, they so suddenly restore Motion to the oppress'd Heart, purely by their Smell, that we cannot enough admire their Efficacy; for such is the Nature of all Substances which abound with a penetrating and fragrant Oil, that, when used either internally or externally, they singularly cherish and preserve the Strength of our Constitutions. On the contrary, every thing that is putrid, fetid, and the Reverse of fragrant, is highly prejudicial to Strength, and the vital Motions, which it soon oppresses and destroys; for every Degree of Putrefaction is highly prejudicial to Life, and when it either begins, or is increased, in a human Body, the Strength and vital Motions forthwith fail, and are destroy'd, as we evidently see in Plagues, malignant Fevers, and Mortifications of the internal Parts. For this Reason, Remedies prepar'd of *Balsamics* are justly styl'd the *Balsams*, the Waters, and the Spirits of Life, since they have such a direct and immediate Influence upon it.

Since then *Balsamics* convey Motion, Strength, and Tone, to all the Parts of the Body, we may easily see, that these Medicines must be singularly efficacious in those Disorders and Indispositions, where the Strength and vital Motions are impair'd, or where the Viscera and other Parts are too much

relax'd and deprived of their due and proper Tone. For this Reason, they will never frustrate the Expectation of the Physician, who prudently exhibits them in Weaknesses of the Brain and Nerves, Imbecillity of the Memory and Senses, a Palsy of the Members, a Privation of Voice, a Hemiplexy, Inappetencies, Loathings of the Food, Vomitings, Diarrhoeas, and Gripings of the Belly; in Cases where Flatulencies prove uneasy, in Languors of the whole Body, in Faintings, and in all cold catarrhus Desfluxions; in Coughs that are too moist, a Coryza, a Fluor Albus, a Gonorrhœa, a moist Asthma; and, in a Word, in all Cases where the Parts are to be strengthen'd. Then again, as the best and most valuable *Balsamics* convey Strength and Energy to the solid Parts of our Bodies, especially to the Heart and muscular Fibres, which move and impel our Fluids; hence it follows, that they are the surest and most efficacious Preservatives against all Kinds of Diseases, as will sufficiently appear from the following Considerations. As long as the Blood and Humours are quickly and uninterruptedly carried thro' the Ducts and Vessels of the whole Body, and what is superfluous and recementitious carried off thro' proper Strainers and Emunctories, so long the whole Body, and each particular Part of it, are in a State of Health, and duly perform their respective Functions: But as soon as this Motion is either disturb'd or interrupted, in the whole Body, or any of its Parts; or when the necessary Secretions are not duly made, a sure Foundation is, by these very Means, laid for Diseases. Now nothing is of more Efficacy for preserving the vital Circulation of the Humours, and carrying on the necessary Business of Perspiration, than those Substances which strengthen and corroborate the Heart, that principal Part of the Body; with their *balsamic* Qualities. But our noble *Balsamics* are particularly and singularly useful, as Preservatives against putrid Diseases, and such as are justly formidable, on account of their contagious and malignant Natures. For this Reason they are used, as Preservatives, with uncommon Success, when epidemical Disorders rage. They are also very properly join'd with Alexipharmics in the above-mention'd Disorders, because they resist Putrefaction, recruit the Strength, and promote a due Circulation of the Humours: And since they so powerfully guard against Putrefaction, which is so prejudicial to Life, they are, for this Reason, very properly and successfully used in the Venereal Disease, which is truly of a putrid Kind; and in those Scurvies which are the Result of an impure Air, and unwholesome Aliments; for the Decoctions, Elixirs, and Essences of the Woods, derive their Virtues and Efficacy from the *balsamic* Qualities of the Ingredients: Besides, *Balsamics*, especially of the fragrant Kind, have this singular Advantage attending them, that they becalm the exorbitant Motions of our Fluids, and allay Pain. For this Reason, in violent Head-achs, Tooth-achs, and Pains of the Ears, they often afford great Relief, even when only externally apply'd. Neither is it to be forgotten, that *Balsamics* prove excellent Correctors to all the more violent and drastic Medicines, especially Evacuants and Anodynes; for they remarkably qualify their Virtues by their corroborating Qualities. For this Reason, *Balsamics* are very happily join'd with almost all evacuant and anodyne Medicines. From all these Considerations it appears, how proper and efficacious *Balsamics* are, for the Cure of a large Number of Diseases.

But as nothing is, in every respect, perfect and complete, as there is no Medicine, however valuable in itself, but what produces bad Consequences, when imprudently exhibited, there is no doubt to be made, but this is also the Case with *Balsamics*; for when there is in the Body too large a Quantity of hot and servid Blood, when its Motion is too much accelerated, and the Pulse quick and vehement, Nature has, in these Cases, more need of a Check than a Stimulus; for which Reason we must neither attempt to excite nor augment the Motions of the Fluids. Besides, fragrant Substances have this Disadvantage attending them, that when the Brain, in consequence of some Weakness, with Difficulty transmits the Blood, and the Vessels of the Head are become turgid with Humours, they occasion a greater Derivation of Humours to it; and sometimes increase the Pains, Torpors, Vertigoes, and Oppressions of the Senses. I must here add, that Physicians have not as yet sufficiently discover'd the Virtues and Efficacy of *Balsamics* in the Practice of Medicine; since they are far more powerful and efficacious than is commonly believed. The spirituous *Balsams*, which are commonly sold, and which ought to be made of the purest ethereal aromatic and cephalic Oils, are, for the most part, sophisticated and adulterated; so that Physicians have no Reason to be surpris'd, if they do not produce the Effects they would do, if they were pure and genuine. I must, in the last place, observe, that Physicians are very faulty in drowning, as it were, *Balsamics* in spirituous Liquors; since they almost always either mix them with Spirit of Wine, or join them with it by Distillation; by which means the Virtues of the *Balsamic* are infringed, and it assumes a violently hot Nature. The more, then, their genuine Natures are retain'd, the more efficacious and useful they are. *Hoffman*.

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Besides the Balsams already mention'd, some others, which are very scarce, and rarely to be met with, are mention'd by Writers on the *Materia Medica*. Amongst these, is the

BALSAMUM IPECUEBÆ, which is drawn from the *Becuiha Nux*; and, in *Brasil*, is much esteem'd in rheumatic and paralytic Cases. *Geoffroy*.

The *Index Medicamentorum* also takes Notice of a Balsam call'd BALSAMUM THOMÆUM; and of another call'd BALSAMUM VIRIDE, or OLEUM MARIÆ.

There has, of late, been imported from *New England* an excellent liquid Balsam, which, by its Fragrance, and whole Appearance, should not be inferior to many of those above described. I don't know, that it has yet obtain'd any particular Name. This has been frequently sold to the Apothecaries for the true *Opobalsamum*.

A Mineral BALSAM in ALSATIA.

In the Valley call'd *Liberthal*, near *Geosbach*, (an ancient Mine-work in *Alsatia*) there runs out of a Cavern a foul, pinguous, oily Liquor, which affords an excellent Balsam, by taking a Quantity of it, and putting it in an Earthen Pot well luted, that no Steam may exhale; and then with a gentle Fire at first, but a stronger afterwards, boiling it for three Hours together; in which Space it will boil in a fourth Part, and an Earthen Matter, like Pitch, will settle itself at the Bottom; but on the Top thereof, when cold, there will swim a pinguous Substance, like Linseed-oil, limpid and somewhat yellowish, which is to be decanted from the thick Sediment, and then gently distill'd in an Alembic in a Sand-heat; by which means there will come over two differing Liquors, one phlegmatic, the other oily, which latter, swimming on the Phlegm, is to be sever'd from it. The Phlegm is used as an excellent Restiter and Curer of all the Putrefactions of the Lungs and Liver; and it heals all foul Wounds and Ulcers. The oily Part, being diluted with double its Quantity of distill'd Vinegar, and brought three times over the Helm, yields a rare Balsam against all inward and outward Corruptions, sinking Ulcers, hereditary Scurs and Scabs. 'Tis also much used against Apoplexies, Palsies, Consumptions, Giddinesses, and Head-achs. Inwardly they take it, with Succory-water, against all Corruptions of the Lungs. It is a kind of *Petroleum*, and contains no other mineral Juice but that of Sulphur, which seems to be thus distill'd by Nature under Ground; the Distillation of an Oil out of Sulphur, by Art, not being so easy to perform. *Philosophical Transactions*.

A Mineral BALSAM in ITALY.

In the Territory of *Pergamo*, *Sig. M. Ant. Castagna*, upon the Confines of his Jurisdiction, lighted accidentally upon a not ordinary sweet balsamic Scent; which directed him to a rocky Hill, where he found the Stones harbour'd that Fragrance, which was so strong, and, by Trials, found so friendly to the Uterus, that, being applied, they did, in a very short time, cure it of any Evil 'tis subject to. Encouraged hereby, he made his Workmen dig into the very Bowels of the Hill, where he discover'd Holes in some Stones, as if excavated by Art, of a greenish Colour, in which he found, as distill'd by Nature, and kept in Vessels, that Liquor and Balsam which proved the Source of that Scent, which was limpid, and of a white Colour, like the White of an Egg, but somewhat oleaginous, floating upon all sorts of Liquors like Oil. Besides, he met in the same Cavities some small Grains concreted of the same Liquor, resembling that which they call white Amber, which, being chymically distill'd, had the same Odour with the Balsam. *Phil. Transf.*

BALSAMUM DE CHILI.

I have more than once, in this Work, mention'd the Balsam of *Chili*, particularly in Quotations from *Musgrave* and *Hoffman*. The Importance of these Authors renders it necessary to inquire what this Balsam is, or rather whether there is any such thing. Upon the best Information I can get, then, it appears, that there is no such thing known either in *England* or *Spain*; from whence we may reasonably conclude, that all the other Parts of *Europe* are Strangers to it. The only Author I have met with, who affirms its Existence, is *Salmon*, who, in his *Polygraphice*, recommends it as a sort of universal Panacea.

There is, says he, lately brought from *Chili*, a Province in *America*, a most excellent natural Balsam, differing (but not much) from those of *Pern* and *Tolu*, but no ways inferior in Virtues and Excellency, as the several Experiments lately made of it, by several learned Physicians, in the curing of Diseases, have given evident Demonstration.

It is a Remedy that no Man under the Sun can compose, being a natural Balsam, distilling from a Tree in *Chili*, bearing a Leaf something differing from an Olive-leaf. It is, without doubt, the most precious of all natural Balsams, by reason of its great Virtues, and admirable Odour, excelling all others, even the most fragrant.

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The Merchant that has brought it over, has only entrusted it to be sold with Mr. *Thomas Passenger*, at the *Three Bibles* on *London-bridge*, where it may always be had in any Quantity, ready put up in Glasses, seal'd with the Balsam-tree, Price twenty-four Shillings the Pound, or eighteen Pence the Ounce. *Salmon*.

Upon the strictest Inquiry, I have the strongest Reasons to believe all this to be utterly false; for I am well inform'd, that this Balsam is factitious, and that it was made in the Person's House who sold it, by his Cook-maid. *Salmon* therefore was deceived; or else, for particular Reasons relative to his own Interest, imposed this Falshood on the World; a thing not unusual in these Days, wherein the noble Art of Medicine is prostituted to the meanest Ends.

When we design to extract a large Quantity of Balsam of any Kind, we, for that Purpose, make Choice of the small Branches of such Trees as yield it, when they are most fill'd with Sap; for at that time they yield more than at others. Then we soak and boil them in Water, to occasion a Separation of the most fluid of the resinous Parts, which we gather off the Surface of the Water. This is the Method of preparing some liquid Balsams: And this same Course might also be taken for extracting the Resin from our Firs and Pines, if Incision was not sufficient for that Purpose. *Geoffroy, Mem. A. 1721*.

BALSAMUM ALBUM.

What the Chymists call by this Name is equal Parts of Vinegar of Lead, evaporated to the Consistence of Honey, and of Oil of Roses. This is in some Reputation, amongst the Surgeons, as a Drier.

BALSAMUM ANODYNUM BATÆI: Bates's Anodyne Balsam.

Take of *Cassile* Soap, an Ounce; of Opium, half an Ounce; of Camphire, six Drams; of Saffron, a Dram; and of rectified Spirit of Wine, eighteen Ounces: Digest them together for ten Days; then strain off the Balsam.

This is much like a Prescription of *Horstius*, which he gives by the Name of *Balsamum Antipodagricum*. It is a most excellent Medicine, not only for procuring Ease in the most racking Extremities of Pains, but for assisting likewise in the Discharge of such Humours as occasion those Pains. In nervous Colics it is of great Service; and it cleanses all the Viscera, and glandular Parts. It is good even in the Jaundice, and such Distempers of the Urinary Passages as proceed from Obstruction of Gravel, or slimy Humours. But its greatest Excellence is in allaying the Tortures of the Gout, promoting the Transpiration of the peccant irritating Matter, and carrying off the Fit, inasmuch that, with a few proper Helps, this Distemper is hardly so obstinate in any Person whatsoever, but he may meet with great Relief, if not a thorough Riddance from it. Inwardly it may be given from twenty Drops to fifty at a Dose; and being outwardly applied to the pain'd Part, it does mighty Service, a Rag being dipp'd in it, and laid thereon. *Quincy's Dispensatory*.

Bateman's Pectoral Drops are imitated from this. I take the only Difference to be, that *Bateman's Drops* have a less Proportion of the Spirit, and consequently, being not so strong, may be given in larger Doses; and that they have an Addition made to them of Aniseeds.

BALSAMUM ANODYNUM, VULGO GUIDONIS: Anodyne Balsam, commonly call'd Guido's Balsam.

Take of Hepatic Aloes, Gum Ammoniac, Bdellium, Caran-na, Castor, Galbanum, Labdanum, Myrrh, Balsam of *Pern*, Olibanum, Amber, Tacamahac, and solid Storax, each half an Ounce: Reduce the Ingredients, capable of it, to Powder; then add the full Weight of them all of *Venice Turpentine*: Put the Whole into a Retort, whereof they may fill but two Thirds, and distil it according to the Rules of Art; observing dexterously to separate the red Oil, or Balsam, from the Liquor that floats above it.

If the Distillation be perform'd in an Alembic, with the Addition of four times the whole Quantity of Spring-water, the Balsam will be obtain'd free from any empyreumatical Impression. *Edinburgh Dispensatory*.

BALSAMUM SIVE SPIRITUS EMBRYONUM.

Take three Capons without the Fat, beat and cut them small; add of Dates, one Pound; Raisins of the Sun, one Pound and an half; Baum, four Handfuls; Angelica, Marjoram, and Chervil, each three Handfuls; Basil-seeds, half an Ounce; Fennel, Angelica, and Lemon-peel, each three Ounces; Citron-peel, Piony-root, and Borrage, each four Ounces; Angelica, one Ounce and an half; Saffron, five Drams; Conserve of the Flowers of Borrage, Clove-gilly-flowers, and Marjoram, each four Ounces; Spanish Wine, thirty-two Pounds: Distil to Dryness. With this Water, together with one Pound of the

the Spirit of Clary, Black-cherry and Baum-water, each three Pounds; Borrage-water, four Pounds; blanch'd Almonds, one Pound and a half; make an Emulsion: To which add, of the Conserve of Piony-flowers, six Ounces; of Borrage, and Clove-gilly-flowers, each four Ounces; Flowers of Violets, Cowslips, *single Clove-gilly-flowers*; red Rose-flowers, and Marygold-flowers, each four Handfuls; Aloes-wood, three Drams; yellow Saunders, two Drams and an half; Cinnamon, eight Ounces; Aromaticum Rosatum, one Ounce: Distil according to Art.

This Medicine is given with great Success to Women who have suffer'd frequent Abortions; as also to Women big with Child, when they languish in consequence of a sudden Fright, or from any external Cause. In these it also cures Lipothymies, Faintings, and Inflations of the Belly; strengthens the Fœtus, when weakly; corroborates the Ligaments of the Uterus; prevents the Epilepsy; and assists Sanguification. The Dose two, three, or more Spoonfuls, as the Circumstances of the Case requires. *Pharmacopœa Batava.*

BALSAMUM GENEVIEVÆ, or Genevieve's internal and external Balsam.

Take three Pounds of Oil of Olives; of Rose-water, one Gallon; of new Wax, half a Pound; of *Venice Turpentine*, one Pound; and of the Powder of red Saunders, two Ounces. Boil the Whole in a new Earthen Vessel, with three Gallons of red Wine. After it has boil'd for half an Hour take the Vessel off the Fire, and allow it to cool; then separate the Balsam from the Wine, and the Powders which remain at the Bottom of the Vessel.

This Balsam is used for Wounds of all Kinds, whether they penetrate into the Cavities of the Body or not; for gangrenous Ulcers, Rheumatisms, all Pains, even those which are internal; such as the Pleurisy, the Colic, and Head-ach. The Patient is to anoint the Part affected with some of it warmed, and take two Drams of it internally. It is also used against all Kinds of malignant Fevers, and the Bites of poisonous Animals.

When Wounds happen to penetrate into the Cavities of the Body, some of this Ointment must be syringed into them; and some of it must be exhibited internally in Veal, Capon, or any other Broth; or even in vulnerary Waters or Pisans.

But what effectually proves the Efficacy of this Balsam, and what, probably, first procured it that uncommon Esteem in which it is now universally held, is a Cure related by Mr. *Duverney* the younger, in the Memoirs of the Royal Academy of Sciences in *Paris* for 1702. which, on account of the uncommon Circumstances attending it, we shall here insert.

On *St. Thomas's Eve*, in the Year 1701. a Man of forty or forty-two Years of Age, and of a good Constitution, happened to receive a Wound with a Sword in the inferior and internal Part of the Middle of his Right Arm. The Wound ran obliquely upwards into the Muscles for about four or five Fingers Breadth. The Blood flowed from the Orifice with uncommon Impetuosity, which soon brought the Patient to a very weak and feeble State. In this Condition he was carried to the first Surgeon that could possibly be found; the Artery, in the mean time, being secured with a Compress, and pretty tight Ligature, apply'd above his Elbow. But the Patient, recovering his Strength a little, was conveyed to his own House, where the Orifice of the Wound being opened, Lint drenched in astringent Liquors was conveyed to its very Bottom; then the Orifice was carefully covered up, and the Dressings secured by proper Bandage. The Patient had some blood taken from him, and was reduced to weak Broths and Pisan. The Wound was not dressed till forty-eight Hours after, when all the Dressings were removed to the very Pledget, with a View to moisten them, and the Bandages, which were again applied with the same Care they had been in the first Dressing. This Method was, almost without any Variation, persisted in till the Eve of *Saint Genevieve*; at which time the blood flowed in great Plenty from the Wound. For this Reason, a small Incision was made afresh, and the Wound dressed almost in the same manner as at first; though at the same time the Patient perceived, that the fore Part of his Arm had changed its Colour, but yet without any concomitant Pain; his Fever was of the continued and burning Kind; and his Inquietude and Want of Rest, very great. At last, on *Saint Genevieve's Day*, we found that not only the fore Part of the Arm was gangrened, but that the Putrefaction had spread itself to the internal Part of his Arm. The Patient, and those who were present, being struck with Terror at this Discovery, demanded a Consultation; and for that Purpose made Choice of three Surgeons, much accustomed to inspect Cases of a dangerous Nature. Upon examining the Patient, and taking a careful View of his Disorder, they found not only the fore Part of the Arm entirely cadaverous, but also its internal Part in the same Condition as far as the Arm pit. The Bone, in the mean time, was laid

bare by the Putrefaction for about three or four Fingers Breadth from the Arm-pit. The Progress of the Mortification, the Fever accompanied with Oppression, the livid Colour of the Patient's Complexion, his small and tremulous Pulse, were Circumstances, which determined us to wait till we should see in which manner Nature herself would operate; and, in the mean time, to use both internally and externally such Medicines as could either support his Strength, or procure his Ease.

The same Day, however, a Woman of the Name of *Genevieve* presented herself, and offered to cure the Patient; upon which, the two Surgeons, who were treating him, committed him to her Care. Accordingly, *Genevieve* began her Cure by rubbing the whole Arm, and particularly the fore Arm, whether cadaverous or not, with the above-mentioned Balsam. Then she wrapt the Whole up in Cloths, which she secured with Pins till Night, when she dressed the Patient again in the same manner. In the mean time she ordered him nourishing Food, and rich Wine. Twenty-four Hours after these Measures were taken, a Suppuration began to appear. *Genevieve*, in the mean time, continued to dress the Patient in the same manner; the Wound assumed a more and more beautiful Appearance after each Dressing, and the mortified Flesh separated easily, and adhered to the Cloths, or soft coarse Paper, which she often used for Dressings. It was proposed to *Genevieve* to have the mortified Part of the fore Arm separated at the Joint, not only because of its strong and disagreeable Smell, but because it was already almost separated by the Mortification; but she refused to comply with the Proposal, and said, It was not necessary to take any Measures at all with regard to it, since her Remedy would sufficiently answer all the Intentions they could possibly propose by such a Step.

At last all the fore Part of the Arm was entirely separated at the Joint from the Arm itself, six Weeks after *Genevieve* undertook the Cure; after which, she continued to apply her Ointment to the uncovered Bone, and all the rest of the Arm, without having any manner of regard to the Filth which came from between the Bone and the Flesh, or to any other Circumstance whatever. The Consequences however of her Conduct were sufficiently happy; for about a Month after the Separation of the fore Part of the Arm, the Part of the Bone which had by that means been laid bare, exfoliated, and was entirely separated from the Remainder of the sound Bone. Before this Separation happened, we were at a Loss to conjecture what would be the Fate of this large Portion of Bone, and of the Shreds of Flesh and Skin remaining on the back Part of the Arm; we also dreaded an Hæmorrhage: However, none of these Suspicions disconcerted *Genevieve* in her Measures; she continued her ordinary Dressings, the Consequence of which was, that the remaining Fibres poured forth a nourishing Juice, and lengthened themselves so as to cover the Extremity of the Bone, and form a very natural and beautiful Stump.

All this was transacted, and the Cure completed, in the Space of four Months, without the Patient's being so much as once attacked with a Fever, or any other Disorder. He was twice purged during the Course of the Cure, and at present enjoys a perfect State of Health.

REFLECTIONS.

We have Reason to believe, that the Mortification was occasioned by the manner of Dressing the Patient at first; for, besides the too tight Ligature on the Wound itself, there was also a Compress strongly applied, all along the Artery as far as the Arm-pit; so that the nutritive Juice was intercepted from the fore Arm, and the Parts were compressed by the Bandage. This Inconveniency may be shunned by tying the wounded Vessel, when 'tis possible, by using the Bandage for the Aneurysm, which is a sort of Truss, or by applying to the Orifice of the Vessel a Piece of a particular Species of Match used in *Germany*, and made of Hemp, or that Species of Mushroom called *Lycoperdon*, either boiled or not boiled; but when the two last-mentioned Remedies are used, we must take care to secure them till they adhere to the wounded Vessel, and then dress with unripp'd Match, or absorbent and balsamic Powders, remembering in both Cases to preserve the Circulation in the Part affected.

The great Hæmorrhage, four liberal Venesections, and a very strict Regimen, had not only exhausted, but impoverished the Mass of the Patient's Blood; so that being destitute of its unctuous and chylous Parts, it could neither recruit itself, nor supply a proper Matter for invigorating the wounded Part. These Circumstances contributed, at once, to bring on the Fever, and augment the Mortification; since the Indisposition remain'd unallay'd and uncorrected by proper Means. Accordingly, as soon as the Patient began to live upon nourishing Aliments, his State of Health became better, the Progress of the Mortification stopped, and the unmortified State of the Parts began to discover itself by a Discharge of Matter, which separated between the sound and mortified Parts. We have Reason to suspect, that the Vessels had been in a manner cauterized, and blocked up by

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corrosive Juices, just as they would have been by the Application of common Caustics, or Ligatures; since the Artery did not discharge its Contents in the time of the Suppuration, though no Applications were used to prevent it; though it was so near its Trunk, and though the Patient lived upon nourishing Aliments, and rich Wine. The agreeable and insensible Manner in which the Suppuration, and consequent Separation of the mortified from the sound Parts was carried on, afforded Time for the Artery to repair and fortify itself; from which we may learn, that 'tis always improper to hasten the Separation of an Eschar, or too soon remove Ligatures from the Vessels to which they have been applied. On the contrary, we ought to use such Medicines as are capable of absorbing the Humidity of the Parts, that thus the Ligature or Eschar may remain the longer, and by that means afford an Opportunity to the Flesh and Vessels to sprout out, to unite themselves, and make a joint Resistance to the Impulse of the Blood.

We are by this Case also taught, that most of the Measures ordinarily taken to bring on the Exfoliation of Bones, either in Whole or in Part, are often useless, if not hurtful; since that is properly the Work of Nature. The great Secret in this Case consists in preserving the natural Heat of the Part, and in augmenting it when it is too faint and languid; both of which are often done with little Trouble, and in a short time, as appears by the foregoing Case, where both were easily effected notwithstanding the bad State of the Arm, and the small Quantity of Flesh, that remained on it. On this Occasion, for Instance, the Rugine, the Trepan, and the Application of Caustics, had been entirely useless; and even though the Bone had been sawed off upon the Separation of the mortified Flesh, the Patient would not have been the sooner cured by that Step; on the contrary, the Exfoliation would have been evidently retarded, and the Elongation and Sprouting out of the Fibres entirely prevented.

I have seen some Surgeons wait in vain for the Exfoliation of some Part of a Bone, for seven or eight Months, and even for a whole Year, notwithstanding the Use of dry Lint, Spirits of Wine, Caustics, and the Rugine; whilst others, who followed a different Course, happily produced the desired Effect in a much shorter Time.

BALSAMUM LUCATELLI: *Lucatellus's Balsam.*

Take of the best yellow Wax, one Pound; melt it over a moderate Heat, in a like Quantity of *Canary*: Then add of the best Oil of Olives, and *Venice Turpentine*, wash'd to a Whiteness in Rose-water, each one Pound and a half. Boil them by a gentle Fire, till the Wine is evaporated; then removing it off, sift in of red Saunders in fine Powder, two Ounces; stirring the Whole about continually, till it is quite cold, that it may become a *Balsam*.

This is but a modern Prescription, so that the College had it not at first. It is used however very much in the present Practice, both for internal and external Uses. *Quincy's London Dispensat.*

This was very unskillfully directed; for the melting the Wax in *Canary* can answer no End, unless to such whose Opinions of a Medicine are in proportion to the Trouble of making it; nor does the Washing the Turpentine with Rose-water avail any thing. If therefore the Materials are all good in their Kind, as soon as the Wax and Turpentine are melted, let the Saunders be stirred in without any boiling at all. But even this way, which the Shops are obliged to comply with, because the Physician would not else know what he prescribes, the Saunders is a very injudicious Ingredient; for it cannot answer any End as a *Balsamic*, neither in internal nor external Use; and if it be put in for the Colour-sake only, this might much better be done by boiling Dragon's-blood for some time in the Oil, with a sufficient Quantity of Water to keep it from burning; for with that it might be brought up to any Degree of Colour, and to a much more elegant Red than the Saunders will give. And when the Oil is tinged, strain it off, mix the Wax and Turpentine with it, and all is finished; and this way it is made in some of our Hospitals. By this means the Medicine is not clogged with Dust to give it a Colour, and is therefore much better for all the Purposes it seems originally designed for. This Composition stands recommended for an internal Vulnerary, and is prescribed in such Coughs as give Suspicion of Tubercles and Ulcerations in the Lungs; and also in all internal Decays from the like Causes, whether the Seat be in the Breast, or any other Part. It is given likewise upon accidental Bruises, and inward Bleeding. Externally it is used to deterge and incarnate green Wounds and Ulcers, that are not of too long Standing; but in the latter Intentions, the Saunders is a vast Prejudice to it, and helps to foul a Wound more than to cleanse and heal it. Inwardly it is given from one Dram to two Drams at a time, either mixed with a little Sugar, or pleasant Conserve. *Quincy's Dispensat.*

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The Edinburgh Dispensatory gives this Preparation different from that of the College.

Take of the best Oil of Olives, a Pint and an half; of *Canary Wine*, a Pint; of Dragon's-blood reduced to Powder, an Ounce; boil them together over a gentle Fire, till the Wine is consumed; then add of yellow Wax, a Pound; of *Venice Turpentine*, a Pound and an half; and of Balsam of *Peru*, two Ounces: Mix them together, by boiling them a little; but add not the Balsam of *Peru* before the Vessel is removed from the Fire.

The substituting Dragon's-blood for red Saunders alters this Medicine considerably for the better, as it improves its Colour, and adds to its *balsamic* Virtues; both which Ends are very indifferently answered by the Saunders. But if the Colour were to be primarily regarded, nothing gives a more beautiful Red to Oil than Alkanet-roots, infused warm therein.

BALSAMUM POLYCHRESTUM: *A Balsam of many Virtues.*

Take two Pints and an half of Spirit of Wine, infuse in it with a gentle Heat, and after stirring it, twelve Ounces of Gum Guaiacum; and lastly, add one Spoonful of *Peruvian Balsam*; so that the Whole may mix together into a Balsam.

This is but a very modern Prescription, and lately receiv'd by the College; but here it differs from their former Edition, in rejecting the Sarsaparilla, and increasing the Gum Guaiacum; which is certainly much to the Advantage of the Medicine, because its Virtue wholly consists in the two Ingredients here retained, the Sarsaparilla affording nothing to the main Intention, which is greatly to warm the Nerves, and refresh the Spirits.

This is an efficacious Remedy for many good Purposes; but particularly to warm and defend the Nerves from those Defluxions which prejudice their Motions; and when they prove of a saline tartarous kind, make the Gout in the Joints. To preserve against this last-named Distemper, there is not a better Medicine, considering the Conveniencies of making and taking it. It will likewise answer all the Ends that are aimed at by the Wood Diet-drinks; it dries up, or dissipates by insensible Transpiration, all superfluous Moistures, is good in all Venereal and scrophulous Cases, and very certainly wears off an old Gleet, where the Virulence has been previously removed. It will change an aqueous Vehicle milky, but may conveniently enough be given in any Liqueur, and it is usually taken from ten to thirty Drops, two or three times a Day. It is somewhat strange, that this Medicine is almost neglected in a regular Practice, and yet made a great deal of, both as to Profit and Reputation, by Empirics, with some of whom it has been pretended a Family Secret, as the *Elixir Salutis*, that is, *Daffy's Elixir*, and some others, which are first stolen from some Physical Writers. *Quincy's Dispensat.*

BALSAMUM CONTRA RHEUMATISMUM: Or, *Balsam against the Rheumatism.*

Take of Rosin, and of *Burgundy Pitch*, each half a Pound; Shoe-makers Wax, two Ounces; yellow Wax, four Ounces; *Venice Turpentine*, two Ounces; new Hog's Lard without Salt, and fresh Butter, each a Pound; Essence of Rosemary, three or four Spoonfuls: Mix, and make a Balsam according to Art.

This Balsam was communicated to Mr. *Duvernoy* the younger, as a great Secret, under the Title of *A Balsam for Rheumatisms, Gun-shot Wounds, Ulcers with Caries*, and others.

Before using 't, the Wound, or Ulcer, must be washed with warm Wine; then the Balsam must be warmed in a Plate, and some of it must be poured into the Wound or Ulcer as hot as the Patient can bear it; then put coarse soft Paper over it, and wrap it up with a linen Cloth. *Memoire de l'Academie*, 1702.

BALSAMUM SAMARITANUM: *The Samaritan Balsam.*

Take equal Parts of Wine and Oil, and boil them till the Wine is consumed. This takes its Name from the good Samaritan of the Scriptures, and is esteemed for cleaning and healing Wounds.

BALSAMUM SULPHURIS ANISATUM: *Balsam of Sulphur with Oil of Aniseed.*

This is prepared in the same manner, with Oil of Aniseed, as the Balsamum Sulphuris Terebinthinatum is with Oil of Turpentine.

BALSAMUM

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BALSAMUM SULPHURIS CRASSUM: *Thick Balsam of Sulphur.*

Take of Linseed Oil, or Oil of Olives, a Pound; of Flowers of Sulphur, four Ounces; and boil them together over a soft Fire to the Consistence of a Balsam; keeping the Matter continually stirring. *Edinburgh Dispensatory.*

BALSAMUM TEREBINTHINÆ: *Balsam of Turpentine.*

Take of the best Resin, and Sand, each equal Quantities; mix them together, so that they may be distilled in a slow Sand-heat; first the Phlegm, then the Oil, and lastly, upon raising the Fire, and changing the Receiver, the Balsam will come over.

The Sand is of no other Effect than to divide the Resin, and facilitate its Rising in the Retort. *Quincy's London Dispensatory.*

BALSAMUM VIRIDE: *The Green Balsam.*

Take of Linseed Oil, half a Pint; of Gum Elemi, two Ounces; of Verdegrise in Powder, two Drams; mix and boil them together over a gentle Heat, so as to make them into an Ointment, *S. A.*

This is a very modern Contrivance, and is much used by our Surgeons in some particular Dressings. *Quincy's London Dispensatory.*

The *Edinburgh Dispensatory* directs this somewhat different; as follows:

Take of Linseed Oil, and Oil of Turpentine, each a Pound; Of Verdegrise reduced to Powder, three Drams; and boil them together, keeping the Mixture stirring, so as to dissolve the Verdegrise.

BALSAMUM VIRIDE DETERSIVUM: *The Green detergent Balsam.*

Take of Linseed Oil, and Oil of Turpentine, each one Pound; of Gum Elemi, Oil of Bays, and the best Turpentine, each four Ounces; Powder of Verdegrise, one Ounce; mix and melt all together over a gentle Heat, continually stirring all the while, so as to make them into a Balsam, *S. A.*

This is said to be greatly valued in the present Practice amongst our Surgeons as a Detergent. *Quincy's London Disp.*

BALSAMUM VIRIDE METENSIVM: SEU DOMINÆ FOEUILLET.

Take of the expressed Oils of Linseed, and Olives of each one Pound; Oil of Bays, one Ounce; of *Venice* Turpentine, two Ounces; melt them upon a very gentle Fire, and when they are cold, mix with them distill'd Oil of Juniper-berries, half an Ounce; Verdegrise, three Drams; Succotrine Aloes, two Drams; white Vitriol, a Dram and an half; Oil of Cloves, one Dram; make a Balsam, *S. A.*

R E M A R K S.

The Vitriol, the Aloes, and Verdegrise, must be powder'd separately very fine; and the Turpentine, Oil of Olives, of Linseed, and Bays, must be mix'd together over a gentle Fire; when the Mixture is half cold, incorporate exactly the Powders, stirring the Matter some time with a Spatula; afterwards add the distilled Oils of Juniper-berries and Cloves, making them all into a Balsam, which must be kept in a Vessel well stopped.

It is proper to cleanse Wounds and Ulcers, to incarn and cicatrize them; for the bites of venomous Animals, they heat it, and put it into Wounds with the Feather of a Quill, or a Pledget of Lint, and apply upon it the *Styptic Plaster of Crollius*.

This Balsam was first invented by Monsieur *Duclos*, a Physician at *Metz*; Madame *Fœuille* used it at *Paris*, and had it called by her Name. *Lemery's Phar. Univers.*

BALSAMUM VIRIDE VULNERARIUM: *The Green Vulnerary Balsam.*

Take of Linseed Oil, one Pound and an half; Turpentine, twelve Ounces; of the Leaves of Adders-tongue, gathered in the Month of *May*, six Handfuls; mix, and infuse these warm together; then boil them till the Leaves are crisp. Press out the Oil, and add to it of Gum Elemi, four Ounces; of Oil of Bays newly extracted, two Ounces; of the best Turpentine, one Ounce; of the Flowers of Verdegrise, two Drams. Let them all melt over a gentle Fire, continually stirring them about to facilitate their Mixture; then strain again, and let the Whole cool into a Balsam. *Quincy's London Dispensat.*

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There are many Sorts of artificial Balsams of Sulphur, which have acquired great Reputation in Medicine. The Methods of preparing them are as follows:

BALSAM of SULPHUR with expressed OILS.

To a Quantity of any expressed vegetable Oil, contained in a glazed Vessel, set over the Fire, add a fourth Part of the Flowers of Sulphur, as soon as the Oil is sufficiently hot to dissolve the Sulphur, which will now fall to the Bottom of the Oil, like a highly red shining Liquor; and they will remain with this Degree of Heat, for a long time, unmixed; but the Fire being gradually increased, though with Care, to prevent the Matter from taking Flame, at length, when the Oil begins to fume, it will intimately mix with the Sulphur, and the Whole become opaque, and form a new and entire Body of the two. If more Sulphur be added, this also may be easily dissolved, by bringing the Oil to fume, and almost to boil; and thus, at length, a considerable Quantity of Sulphur may be dissolved in a small Proportion of Oil, so as perfectly to lose its former Nature of Sulphur.

R E M A R K S.

This is the famous Balsam of Sulphur of *Helmont*, *Rulandus*, and *Boyle*, who very highly commend it for heating, mollifying, and resolving, when used externally; and internally against Putrefactions, and Suppurations of the Kidneys and Lungs especially, declaring they have thus found a secret, but effectual Remedy for Consumptions of the Lungs; but I judge, that by its acrimonious, indigestible, and hot unctuous Part, it offends the weak Lungs, the Stomach and Viscera, of languid Persons, spoils the Appetite, increases Thirst, and parches the Body, already too much dried by the Distemper. And this I speak not rashly, but upon Experience and Consideration; and therefore advise it to be sparingly and cautiously used, with a careful Observance of the Effect: Certainly it is not without a burning Rancidness, as being found, when externally used, successfully to cure pale, cold, watery, mucous, sanious, running Ulcers. Perhaps it was hence somewhat too hastily concluded to have the same Effects when used internally; for thus it raises and continues a Fever. The Chymical Use of the Experiment shews, that Sulphur, which remains untouched in *Alcohol*, the most subtile of Oils, expeditiously, and almost totally, dissolves in a very thick and sluggish Oil, strongly heated by the Fire; which evidently shews, with regard to the History of Menstruums, that an extreme Degree of Subtlety and Penetrability does not here perform what may speedily be effected by a sluggish and viscous Matter. But this is not all: Chymists often wonder that many Fossils, which remain untouched by the sharpest acid Liquors, should yet be successfully resolved by a mild and indolent Oil. Sulphur does not yield to any acid Menstruum; for there is no known Acid stronger than that already contained in the Sulphur, whence others cannot act upon it; but Sulphur is dissolved by Oil: As often, therefore, as a fossil Glebe, when boiled in Oil, affords such a sulphureous Balsam, the Oil must act upon the sulphureous Part of the Matter, unless we except Lead, whose metallic Part dissolves into a Balsam with Oil.

BALSAM of SULPHUR with TURPENTINE.

Put an Ounce of the Flowers of Sulphur into a tall Bolt-head; pour thereon six times the Weight of the ethereal Oil of Turpentine; let them boil for an Hour; the Sulphur will first melt at the Bottom, and part of it will be dissolved in the Oil that floats above it, with a crackling Noise, till at length the whole Sulphur will appear dissolved in the Oil. Let all cool, and a large Proportion of the Sulphur will appear concreted into yellow Spiculae at the Bottom, the Balsam remaining at the Top; so that the Sulphur seems precipitated by a true Crystallization in this Balsam. Pour off the clear Liquor entirely, from the golden sulphureous Crystals, into a clean Vessel apart; add fresh Oil of Turpentine to the Remander; boil as before, and all the Sulphur will be dissolved into a Balsam; but when suffered to cool, it again shoots into sulphureous Crystals. Again, pour on more Oil, and continue thus, till all the Sulphur is perfectly dissolved; whereby it will appear, that one Part of Sulphur requires about sixteen of this Oil to dissolve it entirely. Keep all the Balsams, thus prepared, under the Title of Balsam of sulphur with Turpentine. This Operation requires the utmost Care, as being attended with Danger; for if the Mouth of the Vessel was stopped, the boiling Matter would burst the Glass with greater Violence than has been hitherto observed in any other Experiment.

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Hence we see, that a thin, penetrating, sharp, distil'd Oil, cannot easily dissolve the Sulphur, though a mild, gross, and indolent Oil so easily does it, as we saw in the preceding Process; whence it should seem, that the more subtile the Oils are, the more unfit to dissolve Sulphur, as appears remarkably in *Alcohol*. It appears also, that Sulphur dissolves in distil'd Oils, as Salt dissolves in Water, till the Water is saturated; but afterwards is thrown off into Crystals. The explosive Force of this *Balsam* of Sulphur is the most violent of any that is known. This *Balsam* consists of the Oil of Sulphur, the Oil of Turpentine, the perfect Acid of Sulphur, like that made by the Bell, and a fixed Earth. This *Balsam* is an extemporaneous anodyne Remedy in Pains of the Nerves, and an excellent Medicine in sanious, sinuous, weeping, watery, and fistulous Ulcers. Internally taken, it is heating, diuretic, and sudorific. It is recommended for cleansing and healing internal Ulcers; it is hence too highly commended for a Consumption, Ulcers of the Kidneys, and for expelling and dissolving the Stone; but the cautious Physician will recommend only the gentle Medicines, and be afraid of those that operate violently. It is certain, that the Urine is soon impregnated with a violet Smell, upon taking a little of this *Balsam*; and hence also the Tinctures of Fossils, extracted by Art, with distil'd Oils, are safely received for the Tinctures of Metals. This is call'd the *terebinthinated Balsam* of Sulphur; and as other distil'd Oils may be thus mixed with Sulphur, the *Balsams*, so prepared, receive their Names from the distil'd Oil employed, which gives them their prevailing Odour. Hence the *Balsamum Sulphuris anisatum*, *succinatum*, and *juniperinum*.

The Balsam of Sulphur with Turpentine is generally directed to be made with common Oil of Turpentine, and not with the æthereal Oil, in the manner following:

Take Flowers of Sulphur, four Ounces; and Oil of Turpentine, one Pound: Place the Mixture in a Sand-furnace; stop the Matrafs loosely with another Glass; apply a small Fire for one Hour; then increase it till the Oil boils gently, in which Degree keep it three or four Hours; then let it cool, and pour off the impregnated Oil from that which is not dissolved.

This is an excellent Medicine for all Diseases of the Breast, and likewise for Ulcerations and Obstructions of the Urinary Passages; but 'tis nauseous to take at first, because of an Erysipela, which wears off with long keeping. Its Dose is from six to fifteen or twenty Drops, upon fine powder'd Sugar, which is the best way to take it, because it will not well mix with any Liquor. After the same manner is a Balsam made with any other Oils, as Aniseeds, which is much used in the same Dose, or any other the Physician may direct; but Care must always be taken, lest it boil over, because it immediately takes and burns so fiercely, as to endanger a House. The Vessel ought therefore to be large enough to be two Thirds at least empty, to give it room to rise without running over. *Quincy's Dispensatory*.

The following extraordinary Case, related by *Hoffman*, may serve as a Caution to those who make Balsam of Sulphur with Turpentine.

Considering how universally Chymistry is cultivated, few I believe are ignorant of the surprising Effects produced by Gunpowder, and the *Pulvis fulminans*, as it is call'd, which is made up of three Parts of Nitre, two Parts of the Salt of Tartar, and one Part of common Sulphur; and also by the *Aurum fulminans*. But it may possibly appear somewhat strange and uncommon, that a distil'd Oil, especially Oil of Turpentine, and in which common Sulphur has been dissolv'd, should, when shut up in a Glass, and exposed to a strong Fire, exert itself with a Degree of Explosion, at least equal, if not superior, to that of Gunpowder. However, in Confirmation of the Truth of this, I shall here give an Account of a memorable Accident which happened on the 7th of November 1698. at *Zellerfeldt* in *Germany*, to the great Surprise and Astonishment of the Inhabitants.

A certain Apothecary putting some *Balsam* of Sulphur, with Oil of Turpentine, into a pretty strong Glass Retort, committed it to a Sand-heat; and the Mouth of the Receiver being strongly shut up, he apply'd a very brisk and intense Fire. Soon after such a violent Noise was heard, as made the People who were in the House imagine, that a Hurricane had arisen of so boisterous and dangerous a Nature, as to threaten the immediate Ruin and Downfall of the House. A certain Apothecary's Apprentice standing by the Mortar in the Area not far from the Laboratory, was suddenly dash'd against the Wall; and another, who was standing within the Gate of the Area, being, as it were, thunderstruck, dropp'd down upon the Ground. But, upon his Recovery, he perceiv'd a very fetid and strongly

fulphureous Smell; and suspecting from this Circumstance, that the Havock and Confusion produced was owing to an incautious and injudicious Management of Sulphur, he ran with all the Haste he could, along with a Neighbour who came to discover the Cause of so uncommon a Noise, into the Laboratory, where they found one half of the Retort remaining in the Sand, and the other half, together with the Neck, forcibly driven a great Way into the Area, through the Kitchen-windows, which it had broken and shatter'd very terribly.

Nor were these the only Effects produced by this impetuous Explosion; for it broke the Door of a Cellar, and forcibly drove it, and some Pots and Dishes, out of the Kitchen into the Area. It also broke another Door which communicated between the above-mentioned Cellar and the Laboratory, and tore a very strong Lock off it; and as from the same Cellar there was an Ascent by a winding Stair-case, built in a manner resembling a spiral Shell, to another Apartment, it also broke open the Door of that, and threw a Chest of Drawers, in which there were some *Dutch* Vessels for holding Confections, upon the Floor. In the same Apartment it also lifted some Vessels of the same Kind from amidst others, and dash'd them on the Floor, and drove both the Windows into the Area. Besides, it shattered the Windows by the Door which opened to the Street; and in a smaller Apartment it broke the Flooring, and threw down the Door, together with the Door-case, Lock, and Hinges; the Windows of this Apartment were also shatter'd. It also threw open the Door of the Apartment where the distil'd Waters were kept, and another Door which communicated with the Laboratory, with great Force and Violence. In the Laboratory itself it only broke the Glasses of the Windows, and loosen'd their Cases, without carrying them along with it.

The People in the Neighbourhood affirm'd, that at the very Instant the Noise was heard, a large Quantity of thick Smoak ascended from the Chimney; that the Noise was equal to that produced by the Discharge of Cannons; and that the explosive Force reach'd all the several Quarters of the Town, and shak'd almost every House in the same manner an Earthquake used to do.

This surprising Accident, the incredible Effects of which I saw with my own Eyes, clearly discovers the Genius, Nature, and irresistible Force of Lightning and Thunder; and convinces us, that their piercing and violently concussive Force depends upon the strong Percussion of the Air, whilst it is impetuously agitated and thrust from its Place by means of an igneous, expansive, and highly elastic Principle; so that a whole Column of Air of a considerable Weight produces various and wonderful Effects on Objects that are exposed to it, especially if they are of a hard and resisting Nature, by bruising, breaking, and agitating them; for in reality the surprising explosive Force of Gunpowder, when kindled, is not to be ascribed to Nitre or Sulphur, as the material Cause, but rather to the Column of Air impetuously driven from its Place by the violent rarefactive and expansive Motion of the Air: Hence we see, that Effects of the same Kind with those produced by Thunder and Lightning may, without the Concurrence of Nitre, be produced by a sulphureous Substance close shut up and inflam'd.

Nor is it to be doubted, but the tremulous and concussive Motions of the Earth, commonly called *Earthquakes*, frequently draw their Origins from such a sulphureous Substance being resolved and kindled in subterranean Caverns, where 'tis sometimes found in great Plenty; for 'tis most certain, that no nitrous Salt, which is produced only by the Air, can be ingender'd and form'd in the Bowels of the Earth.

Besides, this Experiment furnishes us with some very useful Cautions; and in a particular manner teaches us, that all inflammable Substances, Oils and Spirits not excepted, especially when close shut up in Vessels, ought to be managed cautiously, and with a due Degree of Fire, lest by the Violence of their explosive Force they should destroy People, or throw down Houses; for we know, that a few Years ago some Chymists in *Leipsic* were convinc'd of this to their Loss, whilst in distilling rectified Spirit of Wine, in a Copper Still, by the Application of too strong a Fire, the Vessels were burst, and the Spirit broke out in a Flame.

For the Illustration of this Experiment we may also bring a memorable Observation publish'd by *Mauehardus* in the *German Ephemerides*. A Cooper put some Measures of dephlegmated Spirit of Wine into a Cask, which held thirteen Firkins, in order to take away the Taste of the new Wood; and, burning Sulphur upon it, he ignorantly shut up all the Holes of the Vessel; upon which such an Explosion was made, that the People of the Neighbourhood imagined an Earthquake had happen'd. By means of this Explosion the whole posterior End of the Cask, though three Inches thick, was not only broken in two Parts, in the transverse Direction of the Boards, but also driven to a Wall at the Distance of four Feet from it with such Violence, that its Fragments were bruised and dashed in Pieces.

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but its exterior End remained entire in the Groove ; and at the same time the Bar which was designed to render it the firmer, was driven away with such Violence, that the Iron Nails which fixed it were driven as forcibly into some Boards lying near it, as if a large Hammer had been used for that Purpose. *Hoffmanni Observ. Physico-chymic.*

BALSAMUM SULPHURIS MARTIS, or Balsam of Sulphur with Iron.

Take clean Filings of Iron, or broken Needles, one Pound : Put them into a Cucurbit, with five Pounds of Spirit of Salt. Let it stand in a digestive Heat five or six Days, in which time the Iron will be almost dissolved. Filtre, and remove it into a Glass Retort. Place it in the Furnace, with a great deal of Sand about it. Apply Fire of the first Degree for one Hour, augment it to the second, which continue till no more Drops fall ; then change the Receiver, and increase the Fire to the third Degree for one Hour, and so pass on to the Extremity of the fourth, and there keep it four or five Hours, in which Time red Flowers will ascend into the Neck of the Retort, and some yellow Spirit come into the Receiver. Let all cool, and remove the Vessel. In the Receiver there will be about four Ounces of a yellow Spirit ; and if the Process be regular, about the same Quantity of foliated red Flowers in the Neck of the Retort. Take of the Flowers, three Ounces ; of the yellow Spirit, one Ounce : Put them into a Matras, and pour eight Ounces of Oil of Turpentine upon them. Let them digest upon warm Sand for twenty-four Hours ; then augment the Fire, so as to make the Matter simmer for two Hours. Let all cool, and separate it carefully from the Fæces, for Use.

This Medicine is by some affirmed to be one of the best Vulneraries in the World, both internally and externally. It is good in all Distempers of the Breast and Lungs, against Gravel, and Ulcers of the Reins. It also cicatrizes and heals Ulcers, outwardly apply'd ; but the Shops are too great Strangers to this Remedy, and it is hardly ever prescribed, but very well deserves a Place in Practice. Its Dose is from ten to fifty or sixty Drops. *Quincy's Dispensatory.*

ODORIFEROUS BALSAMS artificially prepared from distilled Oils, Wax, and Pomatum.

Take an Ounce of perfectly pure Pomatum ; melt it in a China-vessel over a gentle Fire ; then gradually add a Dram of white Wax, fine shaved ; and after the two are well mixed, remove the Vessel ; and when they begin to thicken, drop in a Dram of essential Oil, keeping the Whole constantly stirring, that it may perfectly mix ; after which set the containing Vessel in cold Water, where growing immediately cold, it may keep in the Oil and Spirit. When the Balsam is thoroughly cold, directly put it up into Boxes of Lead or Pewter ; which being close stopp'd, it may thus be preserved perfect for Years. Instead of Pomatum and Wax, the express'd Oil of Nutmeg may be here used, after it has been wash'd so long in Water as to become white, tasteless, inodorous, and pure ; for this is the common way of preparing these Balsams. If they are desired of a grateful Colour, this may be easily given them by the Addition of a little Pigment. Thus, for Instance, a Scruple of Cochineal, reduced to fine Powder, will tinge an Ounce of the Balsam of an agreeable Purple ; or the same Quantity of the inspissated Juice of Buckthorn of a Green ; a little native Cinnabar, ground fine, will turn it of a Scarlet ; fine Turmeric, of a Yellow ; or a little Smalt, of a Blue. Any of these Pigments, therefore, may be used at Pleasure ; provided they have no ungrateful Odour, or pernicious Property.

R E M A R K S.

As these Balsams are prepared in the way of rich Perfumes, and in order to raise the languid Spirits, the noblest Oils, either separate, or artificially mix'd, should be used therein ; and the principal of this Kind, are those of Baum, Calamus Aromaticus, Cinnamon, Cedar, Citron, Cloves, Jessamin, Lavender, white Lilies, Marjoram, Mace, Nutmegs, Origanum, Oranges, both those of *China* and *Seville*, Roses, Rhodium, yellow Saunders : To which we add Balsam of *Peru*, and Balm of *Gilead*, these two being spontaneously fragrant, without Distillation. *Boerhaave's Chymistry.*

BALSAMUM PHILOSOPHORUM is the *Aurum Potabile* of the Chymists.

It would be almost endless to specify all the artificial Balsams which have been contrived by *Dispensatory Writers*. *Lemery*, in his *Pharmacopée Universelle*, has seventy-three different Sorts, some of these above-specify'd included ; besides

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many others in foreign Dispensatories. *Lemery's* are as follows :

Balsamum Album, Leon. Fioraventi. This is very different from the *Balsamum Album* taken Notice of above.

Balsamum Absinthiacum, seu Stomachicum, Mynsichti.

Balsamum ad Nervorum puncturas, de La Framboisiere.

Balsamum Angelicæ, Sennerti.

Balsamum Angelicæ reformatum.

Balsamum Anodynum vel Podagricum, Batei.

Balsamum Antipodagricum, Philip. Mulleri.

Balsamum Apoplecticum.

Balsamum Apoplecticum reformatum.

Balsamum Apoplecticum, Etmulleri.

Balsamum Arcæi.

Balsamum Aromaticum, Mynsichti.

Balsamum aut Unguentum Sympatheticum, Batei.

Balsamum Balsaminæ.

Balsamum Bezoardicum.

Balsamum Cephalicum, Angeli Salæ.

Balsamum Cephalicum Italicum.

Balsamum Christi Paracelsi.

Balsamum Christi Paracelsi reformatum.

Balsamum Cordiale, Angeli Salæ.

Balsamum Cordiale, Sennerti.

Balsamum Dolorem levans.

Balsamum Equitis Sancti Victoris.

Balsamum Galbanetum, uterinum, Sennerti.

Balsamum Guidonis.

Balsamum Heurnii.

Balsamum Hispanicum.

Balsamum Hollerii.

Balsamum Hypnoticum, Mynsichti.

Balsamum Hystericum, Lud. Penicher.

Balsamum Jacomo de Pinto.

Balsamum Italicum.

Balsamum Josephi Balsame, Equitis Sanctæ Crucis.

Balsamum Lonicum Hemislanum.

Balsamum Lucatelli.

Balsamum Magistrale, Batei.

Balsamum Medicorum Florentiæ.

Balsamum Mirabile, Fulleri.

Balsamum Mirabile, Renodei.

Balsamum Mumie, Laz. Riverii.

Balsamum Nephriticum, Fulleri.

Balsamum Nervale.

Balsamum Palmeum.

Balsamum Paralyticum, Mynsichti.

Balsamum Paralyticum, Batei.

Balsamum Polychrestum.

Balsamum Polychrestum, Jacobi Le Mort.

Balsamum Puerorum Dentitium.

Balsamum Samaritanum.

Balsamum Sanguinem sistens.

Balsamum Sarcoticum.

Balsamum Saturni.

Balsamum seu Oleum Benedictum, Appariti.

Balsamum seu Oleum tranquillum, Abbatis Roujeau.

Balsamum Solimani.

Balsamum Spasmaticum, Mynsichti.

Balsamum Spinale, Batei.

Balsamum Stypticum, Mynsichti.

Balsamum Sulphuris Anisatum.

Balsamum Sulphuris Antimonii.

Balsamum Sulphuris Compositum.

Balsamum Sulphuris Rulandi.

Balsamum Sulphuris Rulandi, reformatum.

Balsamum Sulphuris simplex seu terebinthinatum.

Balsamum vel Butyrum succini, Batei.

Balsamum Venereum, Mynsichti.

Balsamum Uterinum aliud.

Balsamum Vulgare.

Balsamum Vulnerarium, Fallopii.

Balsamum Vulnerarium, Mindereri.

Balsamum Zibethæ, Mynsichti.

BALUX. A Name for the Sand of some Rivers, which is mix'd with Gold.

BAMBALIO. A Man that stammers, or lisps.

BAMBAX, or BOMBAX. Cotton.

BAMBU. The ARUNDO TABAXIFERA, which see.

BAMIA. The same as ALCEA INDICA, which see.

BAMMA. The same as Embamma.

BAN. The Name of an Egyptian Plant, call'd also CALAP, which see.

BANANA, Offic. Raii Hist. 2. 1375. *Musa caudice maculato, fructu recto rotundo brevior odorato*, Cat. Jam. 1692. Sloan. Hist. 2. 147. *Ficoides, seu Jcus Indica, longissimo latissimisque folio, caule maculato, fructu minore*, H. Beaum. 21. Boeth. Ind. A. 2. 171. *Musa fructu cucumerino breviori*, Plum. Nov. Gen. 24. *Senorice*, Jons. D. 143. *Pacoeira*, Pl. (Ed. 1658.) 154.

B A N

Bacoba, Ejusd. (Ed. 1648.) 76. *Pacoeira Lusitanis*, Marcg. 137. THE BANANA-TREE.

The Virtues ascribed to the Fruit of this Tree, are, to nourish much, to excite Urine, and provoke to Venery. It grows in *America*.

BANANIERA. A Name for the *Ficus Indica*.

BANAUSIA, *Βαναυσία*. An illiberal or mechanical Art. *Hippocrates*, in his Treatise *περὶ ἐντομῶν*, uses this Word, where it seems to mean dishonourable Artifice, or low Craft, inconsistent with the Character of a Physician, or a Gentleman; and only practised by Quacks and Pretenders, with a View of concealing their Ignorance.

BANDURA *Congulensium Gentianæ Indicæ species*, P. Amman. *Planta mirabilis destillatoria*, Grimmii.

It is like Gentian in Seeds and Seed-vessels; but is, besides, remarkably conspicuous for a foliaceous Sheath, or Folicle, representing a Penis, which is sometimes much above a Foot in Length, and much thicker than a Man's Arm: It hangs by a Leaf, and is half full of a sweet potable Liquor.

To this Description *Grimmii* adds, in the *German Ephemerides*, that the Root attracts the Moisture of the Earth, which, by the Benefit of the Sun's Rays ascending into the Plant, flows down, by the Stalks and Fibres of the Leaves, into this natural Vessel, as into a Reservoir, till it is exhausted for Man's necessary Use. These Receptacles, till they come to full Maturity, are closed up at the Top with a fine Cover, which sometimes falls abroad at the Pressure of the Fingers, and yields the Possession of this sweet, limpid, lovely, cool, and comfortable Liquor; and about six or eight of these Receptacles are sufficient to quench a Man's Thirst, with all the Pleasure imaginable.

The Medicinal Virtues are as follows: The Root is of an astringent Quality; the Herb is cooling and moistening; and the express'd Juice may be of Service, with some proper distill'd Liqueur, internally, in burning Fevers; and externally in Inflammations, Erysipelas, and the like.

It grows not far from *Columbo*, in moist and shady Woods. *Rai Hist. Plant.*

BANGUE, Offic. Park. 1624. Garz. ab Hort. 233. C. à Colla, 290. *Rai Hist.* 1. 159. *Bangue Cannabi simile*, J. B. 3. 440. *Cannabis Indica trifoliata*, five *Bangue Indorum*, Pluk. Almag. 80. *Phytog.* 273. *Cannabis peregrina*, gemmis fructuum *Engelicis*, *Bangue dicta*, Hilt. Oxon. 3. 433. *Cannabi similis exsata*, C. B. 330. Com. Flor. Mal. 68. *Althææ alba species*, foliis *Cannabinis*, à *Garcia ab Horto Bangue dicta*, Helt. Hort. L. Bat. 26. *Kalengi Cansjara*, H. M. Tom. 10. 119. Tab. 60. *Ygeru-Cansjara*, Ejusd. 121. Tab. 61. BANGUE. Dale.

Aeschylus, who has describ'd it, says, it is almost like Hemp, has a square Stalk five Palms high, of a watery green Colour, hard to break, but not so hollow as the hempen Stalk; but the Kind of it is as easy to be drawn into Threads as that of the other. The Leaves are like those of Hemp, green above, and cover'd with a Down underneath, and have an earthy and insipid Taste.

The *Indians*, says *Aeschylus*, eat the Seed and Leaves, to increase their Vigour in Love-affairs, and to excite an Appetite to their Food. The Nobles, and chief military Officers, when they are disposed to forget their Toil, and to sleep in perfect Ease and Security, take of the Powder of the Seed and Leaves as much as they think sufficient, and thereto add an *Areca*, or green *Patte* or *Hazel-nut*, and as much *Opium* as they think fit, and eat them all together with Sugar. If they desire to be entertain'd with Variety of Scenes, and Images of Things, in their Sleep, they add some of the choicest Camphire, Cloves, Nutmegs, and Mace. If they have a mind to be merry, witty, and to indulge their Amours, they add *Ambergris* and Musk, and make them all into an Electuary with Sugar. It is by many affirm'd, that the Seed and Leaves are very effectual in promoting Lust; whence, says *J. Bauhine*, it appears, that this Herb has no Affinity with Hemp, tho' it be very much like it; since Hemp, according to *Dioscorides*, is of an hot and dry Nature, and extinguishes amorous Desires and Motives.

Ray, from whom this Account is taken, says, he learned from *Sir Hans Sloane*, that it is a different Plant from Hemp.

It grows in *Indostan*, and other Parts of the *East-Indies*, where it is principally in Use.

BANILIA. The same as VANILIA, which see.

BANISTERA, *Haufl.*

This was so call'd from a famous Botanist, who lost his Life in the Search of Plants in *Virginia*. We have no *English* Name for this Plant.

The Characters are;

It hath a papilionaceous Flower, which is succeeded by one naked Seed, whose outer Membrane is extended into a winged Leaf, after the manner of the Maple-seed.

Miller mentions five Species of this Plant.

These Plants are all of them Natives in the warmest Parts of *America*, where they grow in the Woods, and twist themselves round the Trunks of other Trees or Plants which grow near them; some of them grow four or five Feet high, and

B A R

others will rise to the Height of ten, twelve, or fourteen Feet; but must be supported by other Plants, for they do not grow erect.

The first, second, and third Sorts grow plentifully in the Woods in *Jamaica*; but the other two Sorts were collected by the late Dr. *William Houston* at *Carthagena*, in the *Spanish West-Indies*. These Plants were call'd Maples, by *Sir Hans Sloane* and *Father Plumier*, from the Resemblance which their Seeds have to those of the Maple; but the Flower differing so remarkably from that of the Maple, the late Dr. *Houston*, with good Reason, separated it from that Genus, and gave the Name of *Banisteria* to them. *Miller's Dictionary*, Vol. 2.

BAQBAB, or rather BAHOBAB. An *African* Fruit, of which *Prosper Alpinus* gives the following Account: *Bahobab*, says he, is a Fruit as large as a Lemon; it resembles a Gourd, and contains black hard Seeds, whose Extremities incline, as it were, to the Form of a Demi-arch. Its Substance also resembles that of the Gourd, which, when newly pull'd, is moist, red, and of a pretty grateful acid Taste. This Fruit, when newly taken from the Tree, is very grateful to the Taste; and in those Parts of *Ethiopia* which are scorched with insupportable Heat, the richer Sort of the Inhabitants correct its acid Taste with Sugar. It is a great Cooler, and a very efficacious Quencher of Thirst. I am also inform'd, that in *Ethiopia* 'tis used against all hot Disorders, and against all putrid Fevers; but more especially those of the pestilential Kind. They have various Ways of using it in these Intentions; for they either eat its Pulp with Sugar, or drink its express'd Juice with Sugar, or take a proper Dose of a Syrup prepar'd from it. At *Grand Cair* also, where the Fruit cannot be had fresh, they use its Pulp, reduced to a Powder, which is like an Earth of a reddish Colour, and has an astringent acid Taste, not unlike that of *Lemnian* Earth. This Powder is also very much used by many against pestilential Fevers, Spittings of Blood, Lienteries, Dysenteries, and the Hepatic Flux; as also for stopping immoderate Fluxes of the Menfes. Some for these Disorders prescribe a Dram of this Earth, reduced to a fine Powder, and dissolved in Plantain-water. Others exhibit it in Decoctions, and others in Infusions. I myself saw one of the Trees, which bears this Fruit, in a certain Nursery; and it very much resembled an Orange-tree, both with regard to its Leaves, its Bulk and Shape. *Prosper Alpinus de Plantis Ægypti*.

There is a sort of Stone also, which, from its Resemblance to this Fruit, is call'd BAQBAB LAPIDEUM.

BAPTISECULA. A Name for the CYANUS MINOR.

BAPTISTERIUM. A Font, or Bath, to wash in.

BAPTUS. A bituminous soft Fossil, of an agreeable Smell, mention'd by *Agricola*.

BARA. *Josephus*, in the third Chapter of his seventh Book concerning the Wars of the *Jews* with the *Romans*, gives us a very fabulous and romantic Account of this Plant, in the following Words: "On the North Side, says he, of that Valley which encompasses *Alachon*, at the Place call'd *Bara*, there is a Plant bearing the same Name, which resembles a Flame. Towards the Evening it emits resplendent Rays, and retires when any Attempts are made to lay hold on it. The only Means of preventing its Escape, is, to throw the Urine, or the menstrual Blood, of Women upon it. One cannot touch it without dying, unless he has some of the Root of the same Plant in his Hand. But there is still another Method discover'd of gathering it without Danger: They dig all around it, till only a small Part of its Root remains fix'd in the Earth; to this they tie a Dog, which, upon making an Effort to follow the Person who tied him to it, tears up the Plant, and dies immediately; and thus, by losing his own Life, saves, as it were, that of his Master. After this the Plant may be safely handled; and has a particular Virtue of removing from People all Dread of the Dangers they may be afterwards exposed to in gathering it: For Demons, which are nothing else but the Souls of the Wicked, which enter into living Men, and which would undoubtedly kill them, if proper Remedies were not used, are dispos'd to be thrown out, as soon as this Plant is applied to the miserable Patients."

BARACH PANIS. *Rulandus* explains this by *Nitrum Salis*.

BARAS. In *M. A. Severinus*, signifies the same as ALPHUS, or LENCE.

BARATHRA, *βαράθρα*. The *Memphitical* Caves, or *Charonæan* Pits, as they are call'd by *Strabo*, go by this Name.

BARBA. The Beard, a Part so well known, that it requires no Description.

BARBA HIRCI. See TRAGOPOGON.

BARBA JOVIS.

The *Barba Jovis* of *Caspar Bauhine*, the *Jovis Barba patre lucens* of *John Bauhine*, the *Jovis Barba frutex* of *Parkinson*, is the Silver Bush. *Rai Hist. Plant.*

I don't find any Medicinal Virtues attributed to it.

The *Barba Jovis Plinii forte Gesneri*, is the *Coggria*, a Species of Sumach. *Parkinson*.

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B A R

The *Barba Jovis Plinii* some take to be the *Oleaster Germanicus*. *Parkinson*.

The *Sempervivum majus* is also call'd by this Name. *Raii Hist. Plant.*

BARBAREA, Offic. Ger. 188. Emac. 243. Raii Hist. 1. 809. J. B. 2. 868. Mer. Pin. 14. *Barbarea*, *Pseudo-bunias*, Merc. Bot. 1. 23. Phyt. Brit. 14. *Barbarea*, *Carperitaria*, Chab. 278. *Barbarea flore simplici*, Park. Theat. 819. *Eruca lutea latifolia*, *five Barbarea*, C. B. Pin. 98. Raii Synop. 3. 297. *Eruca latifolia lutea*, *seu Barbarea major & minor*, Hist. Oxon. 2. 230. *Nasturtium Hybernum*, Thal. 80. *Sisymbrium Erucae folio*, *flore luteo*, Elem. Bot. 192. Tourn. Inst. 226. Boerh. Ind. A. 2. 15. Dill. Cat. Giff. 64. Rupp. Flor. Jen. 63. Buxb. 305. WINTER-CRESSES. *Dale*.

It is a Species of *Sisymbrium*, which sends forth many Leaves to the Height of a Foot and a half, spreading, hollow, bearing Leaves less than those of Radish, and having some Resemblance to those of Cresses, of a blackish-green Colour, and shining: The Flowers are little, yellow, each consisting of four Leaves, disposed in the Form of a Cross; they are succeeded by little Pods, which are long, round, and tender, containing reddish Seed: The Root is oblong, moderately large, of a sharp Taste; it grows in the Fields, and is cultivated in the Kitchen-gardens for Salad. It contains a great deal of essential Salt and Oil.

It is detensive and vulnerary; it excites Urine; it is very good for the Scurvy, for the Diseases of the Spleen, and for the nephritic Colic. It is used externally and internally. *Lemery des Drogues*.

This Herb grows spontaneously in moist and sandy Places, upon old Walls, in Cross-ways, Meadows, and on the Banks of Rivulet. It has the same Virtues and Qualities with the Cresses. It is good: the Spleen, and cures the Scurvy, and Wounds. It is sometimes used all alone, and sometimes mix'd with other Herbs. Its Leaves, bruised, and infused with Wine and Sugar, are excellent for the Scurvy. The express'd Juice of the Herb cures a Defluxion of fetid and scorbutic Humours in the Mouth, Bleedings and Looseness of the Teeth, and Excrescences of the Mouth, if the Gums are rubb'd with it. It is of a drying Quality, and cures impure and fetid Wounds, when mix'd with other vulnerary Ointments. The Herb, boil'd in Wine or Milk, cures Sciatic Pains, if Lint is soak'd in it, and apply'd hot to the Part affected. Of it, together with tepid Water of unripe Oranges, an excellent Medicine is prepar'd, against the Gout of the Feet and Knees, or Sciatic Pains. *Chabr*.

The Seed provokes Urine, and expels the Stone; and may also be used in Sinapisms and Veficatories. *Barthol. Zorn, Botanolog*.

BARBARUM. An Epithet for a Plaister for green Wounds, in *Scribonius Largus*.

BARBOTA, the Barbut. A small River-fish, with a very large Head. It is generally about six Inches long, or more.

In the Choice of this Fish, take that which is well-fed, tender, delicious, and agreeable to the Taste. It yields pretty good Nourishment, and is easy enough of Digestion.

This Fish is a little too soft and viscous. The Row, as well as that of the Eel-powt, is not to be eaten; for it will work both upwards and downwards.

It contains much Oil, Phlegm, and volatile Salt.

It agrees, at all times, with young People of a hot and bilious Constitution.

R E M A R K S.

This is a small River-fish, well known to Fishermen, that lives upon Mud and Slime: Several nice Palates there are, who do not much esteem it, because, they allege, it tastes of the Ordure with which 'tis fed.

Its Liver is well-tasted, and very large, in Comparison to the Bigness of the rest of its Body. Some Authors assure us, there is no other but this Part of the Fish, that is good to be eaten. *Lemery on Foods*.

This Fish is very rare in England; but is sometimes found in the River which runs by *Tamworth* in *Warwickshire*.

BARBUS, Offic. Aldrov. de Pisc. 597. Charlt. de Pisc. 37. Schousf. Ichth. 29. Gefn. de Aquat. 123. Raii Ichth. 259. Ejusd. Synop. Pisc. 121. Rondel. de Pisc. 2. 194. Salv. de Aquat. 86. *Barba & Barbus*, Mer. Pin. 189. *Barbo*, Schrod. 5. 325. *Mystus fluviatilis*, *Barbus*, Bellon. de Aquat. 301. THE BARBEL. *Dale*.

The small Barbels are to be preferr'd before the large, because they are easier of Digestion. They should be also taken in pure running Waters. There are two Sorts of them, one of which is bearded, and the other not.

This Fish is very nourishing, and even proves solid and durable Food enough. It is also look'd upon to be good for the Colic, Piles, and Stinging of venomous Creatures. They also pretend, that it allays Venereal Inclinations: But I am not certain, that all these Virtues, which are attributed to it, are grounded upon solid Experiments.

B A R

This Fish is a little hard, and not easily digested; and a certain Author says, that the Wine wherein it hath been steep'd and boil'd, makes Men and Women barren.

It contains much Phlegm, Oil, and Salt, that is almost all volatile.

It agrees, at all times, with young bilious People, those who have a good Stomach, and are used to much Exercise of Body.

R E M A R K S.

Barbel is a Fish of an oblong Form, and middle-sized, and beset with large and tender Scales. It was antiently consecrated to *Diana*. It breeds three times a Year. It is by some call'd *Trigla*, according to this Verse:

Accipiunt Triglae terno cognomina partu.

This Fish is a little hard to be digested, by reason of some gross Juices contain'd therein: In the mean time, these same Juices make it very nourishing, and good durable Food. It has a good Taste; and the old *Romans* esteem'd it very much, which made them put it amongst those that went at an excessive Price, as several faithful and true Historians have assured us. The Liver is that Part of the Fish that is most esteem'd for the Goodness of its Taste, and the Head next. But *Galen* speaks slightly both of the one and the other, not only upon the account of the Taste, but also Health. *Lemery on Foods*.

The Spawn of the Barbel, at some Seasons of the Year, is a most violent Vomit and Purge.

BARDADIA. A Pound, *Libra*. *Rulandus*.

BARDANA MAJOR, *Lappa*, Offic. *Bardana major*, Ger. 665. Emac. 809. Raii Hist. 1. 332. Synop. 88. Schw. 27. *Bardana vulgaris major*, Park. 1222. *Lappa major*, *Arcium Dioscorides*, C. B. 198. Hist. Oxon. 3. 146. Tourn. Inst. 450. Boerh. Ind. A. 146. Dill. Cat. 168. Buxb. 179. *Personata five Lappa major aut Bardana*, J. B. 3. 570. *Personata*, *Lappa major*, *Bardana*, Chab. 514. BURDOCK. *Dale*.

The Root of the great Burdock runs down deep into the Earth, pretty large and thick, of a blackish Colour on the Outside, and white within, from which spring many large Leaves cover'd with a hoary Whiteness underneath, and green above; of a roundish Shape, yet pointed at the End, and hollow'd in, next the Foot-stalk, indented about the Edges, and many times so large as to cover the Head and Face from the Sun. The Stalks are large and thick, full of a whitish Pith, somewhat downy, and often of a purplish Colour; they are divided into many Branches, on which grow smaller Leaves, and on their Tops a great Number of scaly Heads or Burs, the End of every Scale terminating in a hooked Point, by which it sticks very tenaciously to Garments. From the Middle of these Heads arise hollow fistular Flowers of a purple Colour, and they are succeeded by oblong, flattish, and angular brown Seed. This Plant grows every-where by the Way-sides; and flowers in June and July. The Roots, Leaves, and Seeds, are used.

The Roots are sudorific and alexipharmic, and good in malignant Fevers, and are therefore put in Quantity into the *Aqua Theriacalis*. They are likewise useful against the Gout, and Pains in the Limbs. The Leaves, boil'd in Milk, and apply'd as a Cataplasim, are good for the same Distemper. They are likewise good for Burns and Inflammations, and are one of the Ingredients of the *Unguentum Populneum*. The common People frequently apply them to the Feet and Wrists in Fevers. The Seed, powder'd, and given in white Wine, is good to provoke Urine, and help Fits of the Stone. *Miller's Bot. Off*.

BARDANA ARCTIUM, Offic. *Lappa major montana*, *capitulis tomentosis*, *seu Arctium*, C. B. 198. Tourn. Inst. 450. Boerh. Ind. A. 146. Dill. Cat. 162. Buxb. 174. Hist. Oxon. 3. 147. *Bardana major altera*, Ger. Emac. 810. Raii Hist. 1. 332. *Bardana major, lanuginosis capitulis*, Park. 1222. *Bardana montana*, Schw. 28. *Personata seu Lappa altera, cum capitulis villosis*, Chab. 514. *Personata altera, cum capitulis villosis*, J. B. 3. 571. *Personata montana, capitulis magis tomentosis*, Raii Synop. 88. WOOLLY-HEADED BURDOCK.

It grows in ruinous Places, and by the Sides of Paths; and flowers in July.

The Root and Seed are used in Medicine, and agree in Virtues with the former. The Root, with the Seed, boil'd in Wine, mitigates the Tooth-ach, if the Decoction be held in the Mouth; and the same is used to foment Burns and Chilblains. It is drank in Wine for the Sciatica and Strangury. *Dale*.

BARDANA, Offic. *Bardana minor*, Ger. 664. Emac. 809. Schrod. 4. 25. Schw. 28. *Lappa minor*, *Xanthium Dioscoridis*, C. B. 198. *Xanthium*, Elem. Bot. 348. Tourn. Inst. 439. Boerh. Ind. A. 2. 103. *Xanthium*, *five Lappa minor*, J. B. 3. 572. Raii Hist. 165. Synop. 55. Chab. 514.

514. Hist. Oxon. 3. 604. Park. 1223. Buxb. 342. *Mar-rallunetæ Malab.* Aët. Philosoph. Lond. No. 224. p. 318. LOUSE-BUR. Dale.

This is a much smaller and lower Plant than the common Burdock, having usually but one Stalk, and that not very much branched, growing somewhat more than a Foot high, a little downy, round, and full of black Specks; having its Leaves growing on long Foot-stalks, which are in Shape like those of Marshmallows, but broader, and not so long, waved about the Edges of a yellow-green Colour, somewhat rough on both Sides. The Flowers grow towards the Top, of a greenish Colour, and staminous. The Seeds do not succeed the Flowers, but come forth among the Leaves; being long and roundish, full of large hooked Spines, divided into two Parts, each holding one long Seed. The Root is small, fibrous, and perishing, after it has ripened the Seed. It grows but in few Places in *England*, and that only in a rich and fat Soil; particularly, it is found on the small Common near *Dulwich*, and gives its ripe Seed in *September*.

It is but very seldom that this Plant is used, tho' some commend it against scrophulous Tumors, the Juice being taken inwardly, and the Leaves apply'd to the Swellings. *Matthioli* extols it much, as an Herb of great Service against the Leprosy. *Miller Bot. Off.*

BARLERIA.

This Name was given to this Genus of Plants, by Father *Plumier*, in Honour of *Jacobus Barlier* of *Paris*, who was a famous Botanist. We have no *English* Name for it; but the Inhabitants of the Island of *Jamaica* call it *Snap-dragon*.

The Characters are;

It hath a perlonated Flower, consisting of one Leaf, whose upper Lip or Crest is erect, but the under is divided into three Parts; from whose Empalement rises the Pointal in the hinder Part of the Flower, which afterwards becomes a quadrangular, oblong, membranaceous Fruit, with one Capsule, in which are lodged flat roundish Seeds.

Miller enumerates two Species of this Plant.

I don't know, that any Medicinal Virtues are attributed to it.

BARNA. *Johnson* explains this by *Vas Vitreatum*. I suppose he means a glaz'd Vessel.

BARNABUS. *Rulandus* explains this, if it may be call'd explaining, by *Barnabas*. *Sal Petre Urinarium*; *Urina Salis Petre*; *lectum acerrimum*.

BARNACLES. These are Birds very common in the North of *England* and *Scotland*, remarkable for being the Subject of an extravagant Fable, gravely related by *Gerard*, which is, that they are produced from the Shell of a Fruit, which, falling into the Sea, opens and lets out the young Barnacle.

The Barnacle is a very rank, and highly calefcent Food, and esteem'd by some as a great Dainty.

I don't know whether it is the same as the *Vulpanser*, or different. See **VULPANSER**.

BAROMETRUM, a Barometer. An Instrument for measuring the Gravity of the Air.

BARONES. Small Worms, called also *Nepones* by *Johannes Anglicus*.

BAROS, βαρος. Properly, Gravity. *Hippocrates* frequently uses this Word, to express an uneasy Sensation of Weight or Gravity in any particular Part.

βαρος signifies vehement, violent, acute, or heavy, in Medicinal Writers.

BARURAC, Glas. *Rulandus*.

BARYECOLA, βαρυκολα, from βαρύς, dull, heavy, and ἀκουω, hear. Dullness of Hearing.

BARYOCOCCALON. A Name for the *Stramonium*, Thorn-apple, which see. *Blancard*.

BARYPHONIA, from βαρύς, dull, heavy, and φωνή, the Voice. Difficulty of Speaking. *Blancard*.

BARYPICRON. A Name for the *Absinthium Latifolium*. *Blancard*.

BASAAL. The Name of an *Indian* Tree, which grows in sandy Places, especially near *Cochin*. It flowers, and produces Fruit, once a Year, from the first Year of its Bearing to the fiftenth.

A Decoction of the tender Leaves in Water, with an Addition of Ginger, is used as a Gargarism in Affections of the Fauces. The Berries ty'd in Butter are made into an Ointment, with which they anoint the Forehead and Temples of those who are affected with a Phrensy, and with very good Effect, as they say. The Kernels of the same kill Worms. *Ray, Hist. Plant. 1570.*

BASALTES. A rough Stone, of the Colour, and almost the Hardness, of Iron, which renders it difficult to be cut.

BASANISMOS, βασανισμός, from βασανω, a Touch-stone. It signifies the Investigation, Examination, or Trial of a thing.

BASCANON, βασκανον, Fascination.

BASELLA. Climbing Nightshade, from *Malabar*.

The Characters are;

It hath an annual Root: The Stalks are climbing, and of a purple Colour: The Leaves are round, thick, succulent, and of a dark-green Colour. From the Foot-stalk of the Leaves are produced Spikes of Flowers, which are Male and Female, in different Parts of the Spike: The Female Flowers are succeeded by flat Berries, in each of which is contained one hard Seed.

Miller enumerates three Species of this Plant. There is no Medicinal Virtue attributed to this Plant, that I know of.

BASIATIO. The same as **AMPLEXATIO**, which see.

BASILAREOS. A Name for the *Os Cuneiforme*.

BASILEION, βασιλειον. An Epithet for a Collyrium, described by *Ætius*.

BASILICA VENA. The Basilic Vein in the Arm. See **VENA**.

BASILICON. An Epithet for an Ointment, or Cerate, described in *Ætius Tetrabiblos*, 4. Serm. 3. Cap. 21. very little different from that of the College. *Quincy* is therefore mistaken, when he attributes the Invention of it to *Mesue*. It is thus prepared as directed by the College:

Take of yellow Wax; fat Resin, and Pitch, of each one Pound and a half; of Oil, nine Ounces. Mix them together into an Ointment by melting, *S. A.*

It hath been continued the same thro' all the officinal Dispensatories, especially those of our College, and is much used to incarn Wounds; tho' of late our Surgeons begin to substitute, for such Intentions, Dressings that are not so liable to produce Fungosities, one of which is the following.

UNGUENTUM BASILICON FLAVUM, *The Yellow Royal Ointment.*

Take of yellow Wax, and Resin of the Pine-tree, of each three Pounds; of *Strasburg* Turpentine, twelve Ounces; of Linseed Oil, three Pounds six Ounces. Melt them over a slow Fire, and then put in three Pounds of *Burgundy* Pitch, and let them all melt together into an Ointment, *S. A.*

This was never before in any officinal Dispensatory; and it hath the Reputation of a very eminent Person for its Author. It seems, if any Regard was had in its Contrivance to Example, to have chiefly followed the *Unguentum Aureum* of *Mesue*; but this is a much neater Composition than that; tho' both pretty nearly agree in Intention. *Nicolaus* hath, indeed, a Prescription under the Title of *Unguentum Basilicon Citrinum*, which the *Augustan* Dispensatory hath transcribed; but that is a very injudicious Medley of Ingredients of different Virtues, notwithstanding *Zwelfer* takes a mighty deal of Pains, in his Animadversions, to direct the manner of compounding it. All the *London* Dispensatories, before the last, have likewise retained from *Mesue* an *Unguentum Basilicon majus*; but it is a most perplexed Mixture, and never used, and therefore very justly omitted here. *Quincy's Dispensatory.*

Basilicon is also an Epithet for a great many Compositions, to be found in the ancient Medicinal Writers. It signifies *Royal*.

BASILICUM.

Ocimum Basilicum, Offic. *Ocimum medium citratum*, Ger. 547. Emac. 673. *Ocimum vulgatum*, C. B. Pin. 226. Raii Hist. 1. 547. Tourn. Inst. 204. Boerh. Ind. A. 170. Rupp. Flor. Jen. 178. *Ocimum medium vulgatum & nigrum*, J. B. 3. 247. Chab. 419. *Ocimum vulgare majus*, Park. Theat. 18. *Basilicum, seu Ocimum, medium vulgatum*, Hist. Ox. 3. 406. **COMMON BASIL.**

The Basilicon of *Hippocrates* is, by most Interpreters, thought to be the *Ammi*, Bishops-weed. But what now goes by this Name, is a different Plant.

This is a tender Plant, growing about a Foot high, branched from the Bottom, having two succulent, roundish-pointed Leaves, set opposite at a Joint on pretty long Foot-stalks, in Shape like those of Pellitory of the Wall, but larger; little or nothing indented about the Edges; the Stalks are four-square, somewhat heavy, not very full of Leaves, having on their Tops thin verticillated Spikes of white galeated and labiated Flowers, having two small, round, green Leaves set under each Whorle of Flowers. The Calyx is large and open, containing four, small, round, black Seeds. The Root is small, fibrous, and perishing with the first Frosts. The Leaves and Tops have a pleasant fragrant Smell, especially when gently rubbed. It is sown in Gardens, and flowers in *July* and *August*.

Basil, tho' it has a fragrant, and to most a pleasant Smell, is but little used in Physic. The Antients condemned the inward Use of it, as hurtful to the Sight. *Schroder* says, it cleanses the Lungs of Phlegm, and provokes the Menses. It is an Ingredient in the *Aqua Bryoniæ Composita*, or hysterical Water. *Miller's Bot. Off.*

Hoffman

Haffman says, that the Chymical Oil of Basil is extremely fragrant, and friendly to the Head and Nerves.

BASILIDION. The Name of a Cerate describ'd by *Galen*, and recommended for the Itch.

BASILIS. The Name of a liquid Collyrium mention'd by *Galen*.

BASILISCUS, the Basilisk. A very poisonous Serpent, which is the Subject of many extravagant Fables. A Bird also is fabled to be produced from the Egg of a Cock, which is the most poisonous thing in Nature.

In Chymistry, the Philosophical Sublimate Mercury is call'd *Basiliscus*. And a Stone-glass by this Name, which some Chymists have boasted would kill Mercury, and congeal it into Silver, without Fire. The Philosopher's Stone is also called by this Name. *Paracelsus* names the Venereal Disease *Basiliscus*.

BASIOGLOSSUS. One of the Heads of that Muscle of the Tongue called *CERATOGLOSSUS*, which see.

BASIS, *βᾱσις*, from *βαίω*, to go. The Support of any thing, upon which it stands, or rather goes, according to the original Import. Thus *Hippocrates* calls the Sole, or Bottom of the Foot, the *Basis of the Foot*, in his Treatise de *Articulis*. The superior Part of the Heart is, however, called its *Basis*, to distinguish it from the Apex, or small Point.

The *Basis* of a Compound Medicine, is that Ingredient which enters it in the largest Quantity; or sometimes, which is of the greatest Importance.

BASIUM, a Kiln. I don't know, that this Word belongs more properly to Medicine, than to any other Science; but it is sometimes mentioned as a ready way of taking Infection in all contagious Distempers; especially in Venereal Disorders, when an Ulcer resides in or near the Lips, of which there are some Instances.

Figuratively it signifies an extemporaneous Tincture of *Mars* and *Venus*, that, is of Steel and Copper, invented by *Cloffeus*.

BATEMAN'S PECTORAL DROPS. See *BALSAMUM ANODYNUM*.

BASSI COLICA. The Name of a Medicine in *Scribonius Largus*, compounded of Aromatics and Honey. *Marcellus Empiricus* mentions it. It is taken notice of also by *Aetius* and *Aëtuaris*.

BASURA. *Rulandus* explains this by *Semen*.

BATHMIS, *βᾱθμῖς*, a Seat. Basis, or Foundation. It is used by *Hippocrates* and *Galen* to express a Sinus or Cavity of a Bone, which receives the Protuberance of another at the Joints; particularly those at the Articulation of the Humerus and Ulna.

BATHRON, *βᾱθρον*, or *βᾱδων*, as it is written in *Hippocrates's* Treatise de *Flatibus*. The Seat, or Support. Thus, in the Treatise just quoted, it is said, that the Air is the Support of the Moon.

Bathron also signifies the *Scannum Hippocratis*, an Instrument invented for the Extension of fractur'd Limbs. The Surgeons have laid it aside at present, and make use of more commodious Instruments. The Curious may see a Description of it in *Oribasius de Machinamentis*, Cap. 29. *Scultetus* also describes it.

BATHYPICRON. A Name for the *Absinthium latifolium*. *Blancard*.

BATHYS. A Sort of Cheese which People of Distinction in Rome used to eat. *Galen* says it is the best Sort of Cheese; that is, that, of all Sorts of Cheese, it is the best Aliment. *De Aliment. Facultat. Lib. 3. Cap. 17.*

BATIA. A Retort.

BATINON MORON. The Raspberry. *Blancard*.

BATIS, *βατίς*. The *Crithmum* is thus called, and also *Baticula*.

Batis is also the *Thornback*. See *RAIA*.

Hippocrates makes mention of this Fish, and directs the Tongue as a Pessary to be used in a Redundance of the Menses.

BATITURA. The same as *BATTITURA*, which see.

BATOS, *βατος*, a Bramble, or Briar.

BATRACHIOIDES. This is, according to *Blancard*, a Species of *Geranium*, resembling the *Ranunculus*.

BATRACHITES. A Sort of Stone, which takes its Name from *βατραχίον*, a Frog, as the *Bufonites* does from the Toad. It is of no Use, that I know of.

BATRACHIUM. A Name for the *RANUNCULUS*, which see.

BATRACHUS, *βατραχίον*, is an inflammatory Tumor, which rises under the Tongue, especially in Children. *P. Æginet. Lib. 3. Cap. 26.*

It is a Tumor of the Parts under the Tongue, especially of the Veins. *Aëtius, Tetrab. 2. Sermon. 4. Cap. 37.* See *RANULA*.

BATTATAS HISPANICA.

Batatas, Offic. C. B. Pin. 91. J. B. 2. 790. *Batatas planta peregrina, Indica Camotes, Amotes, & Aliis etiam dicta* Vol. I.

Clusii, Chab. 259. *Battatas occidentalis Indiarum*, Park. Theat. 1383. *Battatas Hispanorum*, Parad. 517. *Convolvulus Indicus Batatas dictus*, Raii Hist. 1. 728. Pluk. Almag. 114. *Convolvulus Indicus, radice tuberosâ eduli, cortice rubro, Batatas dictus*, Parad. Bat. Prod. 325. *Indicus Orientalis Inhamæ, seu Batatas, Sifarum Peruvianorum, seu Battata Hispanorum*, Hist. Oxon. 2. 11. *Battata radice tuberosâ esculentâ, Spinachie folio, flore albo, fundo purpureo, semine post singulos flores singulo*, Cat. Jamaic. 53. Hist. 1. 150. *Sifarum Peruvianum, sive Battatas Hispanorum*, Ger. Emac. 925. *Yetica, vulgò Batata*, Pil. 93. *Yetica Brasiliensis*, Marcz. 16. *Kappa-kelengu*, Hort. Mal. 7. 95. SPANISH POTATOES.

They are used either boil'd or roasted under the Ashes. They are of a fine Taste, and by some preferred to our Turneps. If they are taken new, and bruised, and macerated with a little Water, they ferment of their own Accord, and produce a Drink used by the Inhabitants of *Brasil*.

They grow spontaneously in *Newfoundland*, and the neighbouring Islands; whence they were first brought into *Spain*, and thence into other Countries of *Europe*, Raii Hist. Plant.

BATTATA VIRGINIANA, Offic. Park. Theat. 1383. *Battata Virginiana, sive Virginianorum, & Pappus*, Ger. 781. Emac. 927. *Papas Americanum*, J. B. 3. 621. *Papas Americanum Pycnocomum, Opanank Insulæ Virginie radix Chunno*, Chab. 523. *Papas seu Battatas Virginianum*, Park. Parad. 517. *Solanum tuberosum esculentum*, C. B. Pin. 167. Prod. 89. Raii Hist. 1. 675. Synop. 3. 265. Hist. Oxon. 3. 522. Tourn. Inst. 149. Elem. Bot. 124. Boerh. Ind. A. 2. 67. Rupp. Flor. Jen. 37. Buxb. 306. VIRGINIA, COMMONLY CALLED IRISH POTATOES, Dale.

In *Virginia* it grows spontaneously, but with us is cultivated in Gardens. It flowers in the Months of *June* and *July*. Its Root is only in Use; and that too in the Kitchen, but never in the Shops. It seems to agree, as to its Qualities, with the *Spanish* Potatoes, but is somewhat narcotic. Dale.

You are to chuse those which are large, plump, tender, reddish without, and white within, and of a good Taste, like that of an Artichoke.

They nourish the Body, moisten much, and allay the sharp Humours of the Breast; but yet produce gross Humours, and cause Wind.

They contain a little Salt, but much Oil and Phlegm.

They agree at all times with young bilious People, and those in general, whose Humours are very sharp, and much agitated.

R E M A R K S.

Potatoes are by some called *Earth Pears*; because they grow in the Earth to the Branches of the Root that bears them. They were brought originally from the Country of *Tapi-nambour*, in *India*, and they are now much used for Food.

They are nourishing enough, and allay the sharp Humours of the Breast by their oily and balsamic Principles, which are apt to unite to those Parts that want recruiting, and to embarras the sharp, Salts that vellicate the Breast. They produce gross Humours, and Wind, because they contain a viscous and thick Juice. *Lemery on Foods*.

Potatoes are extremely emollient, and consequently good to prevent and cure Disorders proceeding from, or attended with, a Rigidity or Stricture of the Fibres. Hence it is a very proper Food for those who use much Exercise.

BATTATA CANADENSIS, Offic. *Battatas de Canada*, Park. 1383. Parad. 516. *Flos solis pyramidalis, parvo flore, tuberosâ radice, Heliotropium Indicum quorundam*, Ger. Emac. 753. Raii Hist. 1. 335. *Flos solis tuberosus Indicus, sive Adenes Canadensis*, Griseb. Virid. Lusitan. *Corona solis, parvo flore, tuberosâ radice*, Elem. Bot. 391. Tourn. Inst. 489. Boerh. Ind. A. 102. *Helianthemum Indicum tuberosum*, C. B. 277. *Helenium Indicum tuberosum*, H. R. P. 85. *Chrysanthemum Indicum, radice tuberosâ*, Herm. Hort. Lugd. Bat. 142. Pluk. Almag. 99. *Chrysanthemum perenne majus, foliis integris, Americanum tuberosum*, Hist. Oxon. 3. 23. *Chrysanthemum Canadense strumosum*, Florent. Schw. Cat. Leyd. 22. *Flos solis Farnesianus, sive Aster Peruanus tuberosus*, Col. Ecyh. 2. 11. *Flos solis tuberosus, seu Flos Farnesianus*, Aldin. 91. JERUSALEM ARTICHOKE, Dale.

It is cultivated in Gardens, and only applied to culinary Uses.

BATTITURA. The Squamæ or Scales of Metals, which fly off, whilst under the Hammer.

BATCIA. According to *Blancard*, a Name for the *Pastinaca Sylvestris*.

BAUDA. A Vessel for Distillation. *Rulandus*.

BAUHINIA. Mountain Ebony. *Vulgo*.

This Plant was so named by *Father Plumier*, in Honour of the two famous Botanists, *John* and *Caspar Bauhin*.

The Characters are;

It hath a polypetalous anomalous Flower, consisting of five or more Leaves, which are disposed on one Side; from the

lower-cup arises the incurved Pointal, accompanied with several Stamina of the same Form, which afterward becomes a Pod inclosing Kidney-shap'd Seeds.

Miller enumerates seven Species of this Plant.

BAUL, Urine. *Rulandus*.

BAURAC. The Arabic Word for Nitre; or for any Salt. *Rulandus*. Hence Borax took its Name.

BAXANA. An Indian Plant thus distinguish'd.

Baxana Arbor venenata, J. B. *Arbor fructu venenato, Radice venenorum antidoto*, C. B.

Near *Ormuz* in *Quionne*, a desert Island, there is a Tree call'd *Baxana*, the smallest Quantity of whose Fruit suffocates the Person who tastes it. The same Effect is also produced by remaining a Quarter of an Hour under its Shade. But, since the Root, Leaves, and Fruit of this Tree, which is call'd *Rabusit*, are, in other Countries, Antidotes against all kinds of Poisons, these Circumstances to me appear improbable. *Raii Hist. Plant.*

BDAISIS, *βδάλσις*, from *βδάλω*, to suck, or milk. Suction, or Milking.

BDELLA, *βδέλλα*. A Horse leech. *Hippocrates*, in his second Book of *Proverbs*, seems to mention the *βδέλλα*, as a Cause of Bleeding at the Fauces. As it is not very easy to conceive how this Animal should get to that Part, some have thought that *βδέλλα*, in this Place, signifies a varicose Vein, as it does in *Dioscorides*. But *Galen* contradicts this, and says it really means a Horse-leech, which may accidentally get thither.

Leeches, when swallow'd, are esteem'd of bad Consequence: Therefore *Gelsus* advises to drink, by way of Antidote, Vinegar with Salt, L. 5. C. 27.

We know that a Leech has been swallow'd, when the Mouth of the Stomach has a Sensation of being suck'd and bitten. Sometimes also, when the Leech fixes on the Throat, the Patient, in Spitting, brings up a florid Blood. Brine, the Succus Cyrenaeus, the Leaves of Silphium or Beets, with Vinegar, or Snow dissolved in *Pofea*, (a Mixture of Water and Vinegar) are proper for dislodging and bringing them away. The Patient must also use Gargarisms of Water and Nitre, or Vinegar and Vitriol. Leeches, which fix on the inner Side of the Throat, may be dislodged by ordering the Patient to sit up to the Neck in warm Water, and hold cold Water in his Mouth; for they will come out forthwith in Quest of a cold Liquor, to which they have been accusom'd. Some prescribe Bugs (*ἀπρες*) for those who have swallow'd Leeches; but, says *Galen*, I never had Occasion for prescribing them, since I found Garlic effectual in these Cases. *Paul. Aegineta*, L. 5. C. 36.

I don't know, whether *Paulus* means, by *ἀπρες*, Bugs, *Cimices*, as *Cornarius* has translated it; or a sort of *Hypericum*, call'd by *Dioscorides* *κίς*. See *HIRUDO*.

BDELLERUM, according to *Johnson*, also signifies a Horse-leech.

BDELLIUM, Offic. Park. Theat. 1571. C. B. Pin. 503. J. B. 1. 317. Chab. 73. Mont. Exot. 11. *Bdellium omnium auctorum*, Raii Hist. 2. 1844. *Bdellium gummi*, Ind. Med. 18. GUM BDELLIUM. Dale.

Bdellium is by some call'd *Madecan*, by others *Bolchus*. It is the Tear of a *Saracenic* Tree.

The Marks of its Goodness are, a bitter Taste, Transparency, a Resemblance of Bull's-glue, a Fatness of the innermost Parts, and an Easiness to be solten'd; its being free from Chips and Dirt; with a Fragrancy in Suffumigations, like the *Unguis odoratus*.

There is another kind of *Bdellium*, which is of a black Colour, and dirty, in large Grains, made up into Masses: This is imported from *India*. There is also a dry, resinous, leaden-colour'd Sort, which comes from *Petra*, and is next to the best in Efficacy.

It is adulterated with a Mixture of Gum; but what is thus vitiated has not that Bitterness of Taste, nor Fragrancy in Suffumigations, which belongs to the pure and genuine.

It is of a heating, mollifying Virtue, dissolves Hardnesses, Tumors about the Throat, and an Hydrocele, if it be diluted with tating Spittle. Used in a Pessary, or by way of Suffumigation, it relaxes the Vessels of the Uterus, and brings away the Birth, and all manner of Humidities. Being drank, it breaks the Stone, and provokes Urine: It is given with Success in a Cough, and to those who are bitten by venomous Creatures. It is good also in Ruptures, Convulsions, Pleurifies, and erratic Flatulencies; and is an Ingredient in Malagnas that are compos'd against Hardnesses, and Nodosities of the Nerves. They bruise it, and work it up with Wine, or warm Water. *Dioscorides*, Lib. 1. Cap. 80.

The *Arabians* call *Bdellium* *Mokel*, not *Molechil*, as the Translator of *Serapion*, whom all follow, reads it. Every one knows, that it is a sweet-scented Gum of an *Arabian* or *Indian* Tree. The *Arabians* had another *Mokel*, which was the Fruit of a kind of Palm-tree. *Serapio* treats of both Sorts in two distinct Chapters. *Avicenna* comprehends them both in one Chapter, tho' they agree in nothing but the Name; but for

Distinction-sake they call'd one the *Mokel of Mecca*, and the other the *Mokel of Judea*.

Brassavolus, whom almost all follow, is mistaken when he writes, that the *Bdellium* of the Antients was divided by *Avicenna* into the *Judean* and *Arabian*; for *Avicenna* distinguishes the *Judean Bdellium*, which is a Gum, from the *Meccan*, which is the Fruit of a Tree; but he makes two Kinds of the *Judean Bdellium*, the *Sclavian* and the *Arabian*; therefore the Epithet of *Judean* was common to both sorts of Gums, in order to distinguish them from the *Meccan* of that Name. Thus many *Indian* and *Arabian* Simples, wofu, by the Antients, call'd *Syrian*; because they were exported out of *Arabia* and *India* into *Syria*. *Marcellus Empiricus* says, of the exotic and aromatic Simples used in Medicine;

*Adde & Aromaticas Species quas mittit Eous,
Vel quæ Judaicis fragrant bene condita Capsis.*

“Add aromatic Simples sent from the East, or such as preserve their Fragrancy in *Judean* Boxes:” *Judean*, that is, *Syrian*, for in the Greek Geographers also *Συρία Παλαιστήν* (*Syria Palæstina*) means *Judea*. The same Species were call'd *Indian*, from the Place where they grow; and *Syrian* or *Judean* from the Markets or Shops where they were sold; so that the *Judean Bdellium* was the same with the *Syrian*, of which there were two Kinds; the *Indian* and *Arabian*. However, *Avicenna* seems to be of Opinion, that the *Judean Bdellium* was different from the *Arabian* and *Sclavian*; for he writes, that there was the *Sclavian Bdellium*; and the *Arabian*, besides the *Judean*. By a like Mistake, *Dioscorides* made the *Syrian Nard*, which is the same with the *Indian*, a different Thing. He seems also to make three Kinds of *Bdellium*, and his Account of them is pretty confused. He says it is the Tear of a *Saracenic* Tree, that is, an *Arabian* Tree, pellucid, and like the Colour of Bull's-glue. He then adds, that there was a dirty and black Kind, made up in Lumps, which was brought from *India*. Lastly, he subjoins, that there was a dry, resinous, blackish [*ύποπέλιον*] Sort brought from *Petra*. Perhaps, by the *Judean*, *Avicenna* meant the *Petræan*, as *Pliny* sometimes renders *Πετρίον* by *Judaum*, and mentions *Petræa Judea*; and *Stephanus* makes *Petra*, which gave Name to *Arabia Petræa*, a City of the *Third Palæstina*, which, it is certain, was *Judea*. *Avicenna*, in another Place, mentions a *Bdellium* of an Ash-colour, which may probably be the same with the *Petræan* of *Dioscorides*, which he calls *ύποπέλιον*, *hypopelium*; for the *Indian* is black, but the *Arabian* of the Colour of a Man's Nail, or like transparent Wax.

All the Greek Authors, since *Dioscorides*, knew no more than two Kinds of *Bdellium*, which are, as they call them, the *Σκυθικὸν* & *Ἀραβικὸν*, “the *Scythian* and *Arabian*,” so says *Galen*, *Aetius*, *P. Aegineta*, and others. As to the *Scythian* they give the very same Account of it, which *Dioscorides* does of the *Indian*; so that it is plain, that their *Σκυθικὸν* was the same with *Dioscorides*'s *Ἰνδικόν*. By *Σκυθικὸν*, must be understood what is brought out of *Indo-scythia*, or *Southern Scythia*, at the Mouth of the *Indus*. The Author of the *Periplus* writes, that *Bdellium* is brought from those Parts.

Since *Avicenna* and *Serapio* make a Difference between the *Bdellium Judaicum* (of which one Sort is the *Arabian*) and the *Bdellium Meccense*, which they will have to be the Fruit of a Tree; and as every one knows, that *Mecca* is in *Arabia*; it appears, that there are two Kinds of *Arabian Bdellium*, one a Gum, and the other the Fruit of a Tree. And *Avicenna* himself, in the same Chapter, takes Notice also of a *Bdellium Meccense*, which was the same with the *Judaicum*, and was not the Fruit of a Tree; and this probably was the same as that which *Dioscorides* says was brought from *Petra*; for it is the general Opinion, that the modern *Mecca* was the *Petra* of the Antients. It was formerly a very noted Emporium for *Indian* and *Arabian* Commodities, which were brought thither from *Albus Picius*, a Port of the *Arabian* Gulph. And perhaps the *Indian Bdellium* was the same as that which *Dioscorides* says came from *Petra*; at least, it is certain, that the *Greeks*, who follow'd *Dioscorides*, understood him in that Sense, making only two Kinds of *Bdellium*, the *Arabian*, and the *Indian*, which they call the *Scythian*. The first, then, in Goodness, was the *Arabian*; and of an inferior Sort was the *Indian*, which was brought from *Petra*, an Emporium of *Arabia*. However, I cannot deny but the Words of *Dioscorides* may be understood of three Kinds of *Bdellium*. *Pliny* reckons more, as the *Babylonian*, the *Median*, and the *Bathrian*.

As to the Word *βδέλλιον*, *Bdellium*, it comes from the *Hebrew* בְּדֹלַח *Bedolach*; for *βδέλλιον* is the Diminutive, but *βδέλλα* the Primitive. *Damocrates*, in the Author of the *Periplus*, calls it *βδέλλιον*. *Marcellus Empiricus*,

----- *Crocon atque Bedellam.*

I am not ignorant, that most of the *Jewish* Interpreters expound the *Arabian Bedolach* by a Pearl; but some of the Antients understood by it a Spice, and the Matter itself plainly speaks it. For of this *Bedolach* the *Greeks* coin'd their *μυδάλλιον*, or *μαδάλιον*, to signify *Bdellium*; for *μ* and *β* are often chang'd for one another.

another. Nor is it to be wonder'd, that two Words of different Sounds, but signifying the same Thing, should have the same Original, as that *βέλλα* and *μεδαλχός* should both come from *Bedoluch*. For, after the same manner, out of one Hebrew Word *אבולות* *Abuloth*, some made *ἀγέλλαχον* (*Agalochum*); others from the same Word, contracted into *Aluth*, made *ἀλόν* (*Alse*). The Country of *Havilah* *חַבִּילָה*, or *Chavila*, *Genesis* 2. 11. where the *Bedolach* grows, may as well be taken for *India* as *Arabia*. All the Characters there given belong also to *India*; for *India* too exports Gold and the Onyx-stone. There is frequent Mention made of the *βουζίνι λίθια* in the Author of the *Periplus*, which Stone is brought out of *India*. The *Ευιλαιοι* (*Euilaei*), a People of *India*, are not far distant from this Country of *Havila*; they are so call'd by *Eriphanius*. The ancient *Periegesis*, or *Itinerary*, of the World, takes Notice of *Ευιλίται* (*Euilitae*). *India* then produces *Bdellium*, that is, *Bedolach*. But the Characters belong to *Arabia* in a more eminent Degree; there are the People *Χαυλοταί* (*Chaulotae*), or the *Χαυλοταῖοι* (*Chaulotæi*), of *Eratostratus*; there is also the purest Gold. The finest *Bdellium* is that of *Arabia*, which is transparent, and of the Colour of Wax. "Bedella" is a Tree in *India* and *Arabia*, the Tear of which is best in *Arabia*, being light, fat, and like Wax throughout; but the *Indian* is dirty, black, and in bigger Lumps." *Isidorus*. *Avicenna* says the *Arabian Bdellium* is red, of which the Antients say nothing; but perhaps he only means a Wax-colour. *Βέλλα* τὸ Ἀραβικὸν διαυγές τε καὶ ξανθόν "The *Arabian Bdellium* is transparent and yellow." *Aetius*, *Lib.* 3.

From what has been said, it appears, that the *Bdellium* of the Antients was that sort of Gum which the *Portuguese* now call *Gum Anime*. It is the Tear of a Tree, whitish, resinous, transparent, inclining to the Colour of Frankincense, which, broken, appears of a Wax-colour, in Grains like Frankincense, but bigger: The Oriental, or *Indian*, is *ἡδρόβωλον* (*Hadrobo-lum*) in great Lumps. *Salmasius de Homonym. Hyl. latic.* *Cap.* 109.

This is a Gum of a reddish-brown Colour, deeper than Myrrh, and of a tougher and more tenacious Consistence; and is difficultly dissolved in any Liquor, coming nearest to Myrrh in Scent, but not so pleasant; of a bitterish hot Taste. What comes from *Turkey* and *India*, is by much the best. There is another Sort, which comes from *Guiney*, that is whiter, in large round Drops, of little Scent; but this is less esteem'd. We are quite Strangers to the Tree which produces this Gum. The best Accounts which we have, is, that it is a thorny Tree, with Leaves like those of the Oak.

This Gum is of an heating and drying Nature, helpful against Coughs and Impostumations of the Lungs, provokes Urine and the Catamenia, expels the Birth and After-birth. Outwardly it is used in dissolving and discussing Plaisters. *Miller's Bot. Off.*

Geoffroy says, that both Sorts undoubtedly come from *Abyssinia*.

Some esteem the *Bdellium* of the Antients to be the *Gum Anime* of the Moderns.

Pliny, *H. N. L.* 12. c. 9. says, that this Tree is prickly, black, and as high as the Olive-tree; and that it bears Leaves which are evergreen, and very like those of the Oak. The best Sort of this Gum is pure, yellowish, of a bitter Taste, and very agreeable Smell; it is transparent when broken. It is fat, combustible, soon catches Fire, and is easily melted. That which is black and impure is good for nothing. See *Joh. Jac. Wecker. Antid. Spec. L.* 1. *Secl.* 17. *Galen* gives it the Epithets *Arabian* and *Scythian*; *Pliny* that of *Bactrian*, *L.* 6. *C.* 16. & *L.* *C.* *Celsus* also, *L.* 7. *C.* 4. gives it the Epithet *Bactrian*, either from the Country of *Bactria*, or from the River *Bactrium*, not far from *Judea*. Some are of Opinion, that *Bdellium* and *Myrrh* are produced by one and the same Tree, and that there is no Difference between these two Drugs. *Monardes* is of Opinion, that it is the true *Anime*. See *Matthiol. Comment. in L.* 1. *Dioscor. C.* 70. *Ruel. L.* 1. *C.* 57. *Ol. Worm. Museum, L.* 2. *C.* 15. & 23. *Joh. Dan. Mylii Antidotar. Med. Chymic. reform. L.* 2. *C.* 9. *Georg. a Turro de Hist. Plant. L.* 1. *C.* 81. *Paul. Amman. Manuduct. ad Mater. Med. p.* 128. *Bdellium* is of a hot, comforting, sweetening, absorbent, discussing, and opening Nature. When used internally, it cleanses the Breast of acrid Matter, allays Coughs, purges the Kidneys, and cleanses Ulcers of the Lungs, provokes Urine, and expels the Stone and Gravel, *Galen. S.* 6. *de Simpl. Med. fac.* stops the immoderate Flux of the Menses and the Hemorrhoids, tho' 'tis very rarely used internally. Externally, it softens, discusses, and maturates all Kinds of Swellings and Apostems, cures recent Wounds, and injured Arteries. In the Shops it is made an Ingredient in many softening and discussing Plaisters and Ointments: It is also in the *Mithridate*, the *Emplastr. de Melilot.* *Mrs. Empl. Apostolicon*, *Nicol. Alexandrin. Emplastr. Cere-neum*, *Nicol. Empl. Stictic Groll.* *Emplastr. Diaphoret.* *Mysf.* the *Ceratum Ammoniacum Forest.* the *Ceratum Matricale*, or *De Galbano August.* the *Unguent. Apostolorum Avicenn.* *Barthol. Zorn Botanolog.*

BDELLOS, *βέλλος*. The Smell of a Lamp just extinguish'd. It signifies also a Discharge of Wind by the Anus. Hence,

BDELYGMIA, *βελυγμία*, or *βελυγμία*, or *βελυγμία*. A horrid, disagreeable; and fetid Smell, sufficient to induce a Nausea; or, as it is usually express'd, to turn the Stomach; such as that of some Ulcers, or Excrement.

BECABUNGA. A Name for the *ANAGALLIS AQUATICA*, Brook-lime, which see.

BECHICA, *βηχικά*; from *βήξ*, a Cough. All Medicines which are design'd to relieve Coughs, are call'd by this Name. It is particularly appropriated to several sorts of Troches, to be found in the Compilers of Dispensatories, and signifies the same as *Pectoral*.

TROCHISCI BECHICI ALBI: *The white Pectoral Lozenges.*

From the College.

Take of fine Sugar, one Pound; of white Sugar-candy, half a Pound; of *Florentine* Orrice-root, half an Ounce; of Liquorice-root, six Drams; of Starch, one Ounce and an half; and make them into small Lozenges, with a sufficient Quantity of the Mucilage of Gum Tragacanth, made in Rose-water. On Occasion may be added Ambergrise and Musk, four Grains of the first, and three of the latter.

These are in all the old *Dispensatories* in the same manner, without Alteration. They are pretty much used for Coughs, and Defluxions of Rheum. Some add to them Ambergrise and Musk, which makes them serviceable to sweeten the Breath. But they are of no great Efficacy to any Purpose, and may be taken at Pleasure.

This is directed very little different in the *Edinburgh Dispensatory*.

White PECTORAL LOZENGES.

From Quincy.

Take of the Four greater cold Seeds, husk'd, of each one Ounce and an half; white Poppy-seeds, and Pine-nuts, of each one Dram; Orrice and Starch, in fine Powder, of each three Ounces; fine Sugar, seventeen Ounces: Beat the Seeds into a Paste; then put to it the Powders, and make all into a due Consistence, with a Mucilage of Gum Tragacanth and Rose-water, to cut out into Lozenges.

This is a much better Composition than that under the same Name in the *College Dispensatory*; and if sweet Almonds were in the room of the Pine-nuts, it would be yet more grateful. This is from the *Pharmacopœa Regia* of *Zwelfer*, who likewise makes a red Lozenge, by adding to this two Ounces of Bole; which, with the Whole, is very good against the Heartburn, and is the same, if not a better Remedy, in that Case, than some which are frequently advertised in public Places with great Encomiums.

TROCHISCI BECHICI NIGRI: *The black Pectoral Lozenges.*

From the College.

Take of the Juice of Liquorice, and of white Sugar, of each ten Drams; of Gum Tragacanth, and sweet Almonds, blanch'd, of each six Drams; and make them into Lozenges, with a sufficient Quantity of the Mucilage of Quince-seeds, made with Rose-water, *S. A.*

In the *Augustan Dispensatory* this is clogg'd with many other Ingredients; but the first of the College hath it exactly as here, and there ascribes it to *Rhazes* for its Author. The *Augustan Collection* hath also many other Compositions of the same Form and Intention; but they have not Reputation enough to continue them down to the present Practice: These are much more effectual than the former, to stop Coughs from tickling Rheums, but not quite so grateful to take. Some powder the Tragacanth, but that is very tiresome, and will not make up so smooth, as if it be gradually open'd with Rose-water, enough to beat up with the Almonds into a Paste, and afterwards with the other Ingredients.

The *Edinburgh Dispensatory* directs this different from the preceding.

Take of the Juice of Liquorice, two Ounces; Balsam of *Tolu*, and Storax Calamita, each a Dram; white Sugar, half a Pound; Mucilage of Gum Dragon, made with Hyssop-water, such a Proportion as will, with the requisite Art, make the Whole into Lozenges.

Quincy directs a Troche with the same Title, the Preparation of which is as follows:

Take of the Four greater cold Seeds, husk'd, of each two Ounces; white Poppy-seeds, one Ounce; pour upon them,

In a Marble Mortar, a sufficient Quantity of Juice of Liquorice, diluted to the Consistence of a Syrup with Rose-water, to make them into a soft Pulp; which drive thro' a Sieve with more Pulp of Liquorice, four or five Ounces; and to them put strain'd Storax, one Ounce; Powder of Orrice, three Ounces; of Anise and Fennel-seeds, of each one Ounce; fine Loaf-sugar, two Pounds and an half; and make all into a Paste.

This is likewise from *Zwelfer*, and greatly exceeds that of our College. It is an excellent good Pectoral Lozenge, and useful in all Coughs whatsoever, to be taken at Discretion.

BECHION, a Name for the *Tussilago*, Coltsfoot, because it has the Reputation of being good for Coughs.

BECIOIS, βεκίσις, or βεκίσις, is explain'd by *Galen* περὶ βελτίων, Sheep.

BECUIBA NUX.

This Nut is as large as a Nutmeg, and of a brown Colour. It consists of an oily Kernel, inclosed in a woody brittle Husk. A Balsam is drawn from it, very much esteemed in Rheumatic and Paralytic Cases. It is brought from *Brasil*. *Geoffroy*.

BEDEGUA. Amongst the *Arabians*, this was the Name for a Species of Thistle. *Raii Hist. Plant.* *Blancard* says it was the *SPINA ALBA*.

BEDEGUAR. The spongy Excrecences of the *Rosa Sylvestris* are thus called by some Writers on the *Materia Medica*. The Ashes of these, burnt, are said to be effectual in the Gravel and Dysury; and to incline the Person, who lies upon them, to sleep. *Raii Hist. Plant. Dale*.

BEENEL, an evergreen Shrub, which grows in *Malabar*.

A Liniment is prepared of the Root of this, boiled in Oil of *Sesamum*, which is said to be good for Head-achs, and effectual in removing inveterate Pains in the Limbs.

BEESEA, a Species of the *Bambu*, which grows in *Malabar*. A Decoction of this is used in Obstructions of the Menfes; as also in Erosions of the Gums, and Tooth-ach, by way of Gargarism.

BEGMA, βήγμα, from βήξ, a Cough, in *Hippocrates* signifies both a Cough, and the Spit brought up by it.

BEGUILL, a Fruit about the Size of an Apple, with a rough and knotty Rind, inclosing a Pulp like the Strawberry. *Raii Hist. Plant.*

BEHEM.

The Root *Behem*, as it is delivered to us by the *Arabians*, has been the Occasion of no small Mistake on account of its Homonymy, or passing under the same Appellation with the *Hermodaetyl*. *Been* and *Ben* are erroneously made to be homonymous with the *Balanus Myrsifca*. The Name of this Root in *Arabic* is *Behem*, and *Albehem*. The *Greeks* pronounce it πεχημ (*Bechem*), because they express the *Arabic*, *be*, by χί, as ταμαρχενδι for *Tamarbendi*. Hence, in *Charito*, and other Physicians of later Ages, we read of the πεχημ λευκόν and ερυθρόν, “the white and the red *Bechem*,” which must be understood of this *Arabian Behem*, which is of two Kinds, white and red. Therefore *Avicenna*, where he treats of them, expresses the Name, in the Title, in the Dual Number, *Behemen*, and comprises them both under the following Description; that they are ligneous Pieces of dry'd Roots, shrunk and shrivell'd up, and are of two Kinds, the white and the red. The later *Greeks* make also two Kinds of *Hermodaetyls*, the white and the red; and, for the most part, they use the Term *Hermodaetyl* for the *Arabian Behem*, tho' what the *Arabians* call *Hermodaetyl* be quite another Thing. *Myrsifus*, in his *Antidote* διαμαρτυρεῖται *Galen*, has it thus in the *Greek* Copy, as *Euchys* assures us: Μπερ ἄλβι ῥέμπιε τὰ ἐπιτεγόμενα διμαί' ἑρμοδάκτυλα μακρά. In the King's Manuscript we found written, on that Place, ἑρμοδάκτυλα λευκὰ καὶ ἐρυθρὰ. That ancient Copy always reads ἑρμοδάκτυλον for ἑρμοδάκτυλον. In an ancient *Græco-Arabic* Lexicon, we read Μπισαίταν καὶ μάκας τὸ ἑρμοδάκτυλον, where μπισαίταν is written for βυσαίταν, which is the *Arabic Buzidan*, or *Buzaidan*; and, as we are inform'd by *Avicenna*, a ligneous *Indian* Drug, endued with the same Virtues as both the Kinds of the *Behem*. This Wood, he says, uses to be adulterated with another Kind call'd *Alhaba Barbarie*. This is a Root brought out of *Africa*, which Country was call'd by the *Arabians* *Barbaria*, and is so named at this Day. *Avicenna*, in the Chapter where he treats particularly of this *Chabe Alberberi*, that is, the *Barbarian* or *African Chabe*, says, it was something which was like *Hermodaetyls*, brought from *Africa*, and by which *Hermodaetyls* are adulterated. So that the *Buzidan* and the *Hermodaetyls* were both adulterated by this *African* Root *Chabe*, and the *Buzidan* had the same Virtues as the *Behem*. There was no great Difference, then, between the *Hermodaetyl* and the Roots of *Behem*, since one and the same Thing adulterates *Hermodaetyl* and *Buzidan*, which is like *Behem*. It is no Wonder then, that the later *Greeks* used the Name of *Hermodaetyl*, instead of *Behem*.

The *Arabic* Word for *Hermodaetyls* is *Alsurengian*, the Meaning of which we are to inquire into. *Surengian* is not properly the same as the *Greek* ἑρμοδάκτυλον but this latter is the

Flower of that Plant which the *Arabians* call *Surengian*. For this we have the Authority of *Avicenna*, who calls it *Asaba Hermes*, that is, the Fingers of *Mercury*, which plainly answers to the *Greek* Word ἑρμοδάκτυλον. He says it is the Flower of the *Surengian*, and has the same Virtues; therefore the *Hermodaetyl* is the Flower, and the *Surengian* the Plant. The same Author says, that the *Surengian* is the Root of a Plant, which bears white and citron-colour'd Flowers.

P. Ægineta is the first of the *Greeks*, as far as I know, who mentions ἑρμοδάκτυλον, and only says of it, that it was of peculiar Efficacy in Pains of the Joints, while the Humour is afloat. By ἑρμοδάκτυλον, he means that Kind of *Ephemerum* which is not poisonous, of which *Dioscorides* also writes, that it dissolves Swellings; and the *Arabians* say, that it mitigates the Pains of the Gout, if the Parts be anointed with it. This is their white *Hermodaetyl*, which they also call *Surengian*; but they bestow'd this Name on two Plants, and were deceived by the Homonymy. One of them was a deadly Herb of *Colchos*, of the bulbous Kind, call'd by the *Greeks* ἐνήμερος, because it was so quickly mortal as to kill within a Day's Space. But there was another Herb of that Name, which was also call'd the *Iris Sylvestris*, which was not at all hurtful: This, perhaps, is what the *Greeks* also call'd ἑρμοδάκτυλον, for it had one long Root of the Thickness of a Finger; for which Reason they seem to have call'd it ἑρμὸς δάκτυλον, “the Finger of *Mercury*,” which Name agrees better with the Root than the Flower. So *Asaba Safras*, another Root, from its Colour and Shape resembling a Finger, is by the *Arabians* call'd *Yellow Fingers*. It is certain, that the same Effects are ascrib'd by *Paulus* to the *Hermodaetyl*, as are attributed by *Avicenna* to the *Surengian* which is not poisonous, which are, that it is useful in Pains of the Joints, when the Humour is afloat.

The *Greeks* then knew but one Kind of *Hermodaetyls*, which was the harmless *Ephemerum*, call'd ἰεὺς ἀγέλα, “the wild Iris;” and had a long Root of the Thickness and Likeness of a Finger, and on that Account deserved its Name; but the other round and bulbous-rooted *Ephemerum* had nothing to merit that Appellation; yet the *Arabians* call'd both these *Ephemera* by the Name of *Surengian*. An antient *Arabian* Herbalist renders the τὸ Κολχηκὸν of *Dioscorides*, which is the deadly *Ephemerum*, by *Surengian*: The other *Ephemerum*, which immediately follows in *Dioscorides*, he makes to be another Species of *Surengian*. So they divided this Kind into two Species, the white and the red; the red was the *Colchian*, or noxious *Ephemerum*, which had the Bark of its Root of a red Colour. *Avicenna* calls it the black and red *Surengian*, and says it was poisonous; he so calls it, because its Fruit was black, inclining to red. *Dioscorides*, speaking of the *Colchian*, καρπὸν ἔχοντα πυρρὸν ἐν τῷ μέλανι, ἔχον φλοιὸν ἔχουσαν ἐγκυρρόν, “having its Fruit black, inclining to red, and the Bark of its Root of a red Colour.” Thus it is read in a very good and antient Copy; and it is further confirm'd by *Neophytus*. In the common Editions these Epithets are apply'd to the Root, not the Fruit, φλοιὸν ἔχουσαν ἐγκυρρόν ἐν τῷ μέλανι, “having a black Bark, inclining to red.” Wherefore this is not properly the red *Hermodaetyl*; for that Name only belongs to the *Ephemerum* with a long Root of the Thickness of a Finger. This is commonly call'd the white *Hermodaetyl*, and is the only Plant on which *P. Ægineta* bestows the Name of *Hermodaetyl*. *Avicenna*, who says that the *Digitus Mercurii* was the Flower of the *Surengian*, is to be understood of both Species; and hence the Inhabitants of *Barbary* or *Africa* call'd the Root of both *Ephemera* *Hermodaetyl*. There is another Error in *Avicenna*, in making the *Surengian* the Root of a Plant, that bears a white and citron-colour'd Flower; for both *Ephemera* have a white Flower. He misunderstood the Words of *Dioscorides*, where, speaking of the *Colchian* Species, he says, ἀνίστην ἀνθος λευκόν, ὁμοίον κερκεῖ ἀνθῷ, “it produces a white Flower, resembling that of Saffron.” He took them in a Sense as if they had run thus, ἀνθος λευκόν, καὶ ὁμοίον κερκεῖ ἀνθῷ, “a white Flower, and like that of Saffron,” or of a Saffron-colour; but the Author intends it of a Likeness in Shape, not in Colour. The Flower of the *Colchian Ephemerum* is shap'd like that of Saffron, but white. *Pliny* makes the Flower of the other *Ephemerum* to be blue instead of white; nor must you think, that he had any Authority for what he says: The good Man was imposed upon by his own Ears, which represented to him κυανθῶν ἀνθος for χιονοῖ, “blue flower,” for “Snow-white,” as he hearken'd to his Amanuensis, who usually read to him. He has been mistaken in Hundreds of other Places from the like Occasion.

The Herb *Pentaphyllum* was also call'd ἑρμοδάκτυλος. The Author of the Synonyma of *Dioscorides*, Περὶ τῶν ἰσχυρῶν ὀνύχων, οἱ δὲ πτερόν ἰσχυρῶν, οἱ δὲ ἑρμοδάκτυλον, “the Prophets call it “the Claw of the Ibis, others the Wing of the Ibis, others “*Hermodaetyl*.” The spurious *Apuleius*, in his Herbal, under the Chapter of *Pentaphyllum*, has the same Expressions in Latin; *Prophetæ*, &c. They also call'd it ἀνθρωποχειρεῖα, “Man's-hand,” and ἑρμῆ βλάστη, “the Herb of *Mercury*,” as I found it in the Lexicon of *Harpocration*. This also is good for Pains in the Joints, and for the Sciatica. And perhaps *Paulus* is to be understood

stood as speaking of this *Hermodaetyl*: That he did not mean the *Ephemeron* is probable, because he reckons it separately, and also the *Colchian* Species. *Serapion*, however, takes the *Ἑρμωδάκτυλον* of *Paulus* for the other *Ephemeron*, which is not the deadly Sort. To this they attribute a Virtue of curing Pains in the Joints, which must be understood of the harmless *Ephemeron*, not of the poisonous. For *Abix*, in this Author, gives his Opinion, that the best of the two *Hermodaetyls* was that which had the Outside, as well as Inside, of its Root of a white Colour; for the black and red were pernicious. He means the *Colchian*, of which he seems to make two Sorts, the black and the red, tho' there be but one, which is of a black inclining to red. *Abix*, in *Serapion*, adds, that they are mistaken who think the *Lagias agrestis* is brought from *Africa*; so the Translator renders it; but for *Lagia* we are certainly to read *Labia*, which is the *Caaba* or *Chabe* of *Avicenna*; which, he says, is like the *Hermodaetyl*, and is used to adulterate it. The *Arabian* Interpreters observe, that this *Chabe* is like a small Radish, and is by some placed among the Species of *Hermodaetyls*, and is also call'd by the *Arabians* *Buzeidan*. But these Plants differ only as to their native Soil; this latter is from *India*, the other from *Barbaria*, that is, *Africa*. The *Arabian Labia*, and the *Hermodaetyl*, or black *Ephemeron*, are so near akin in Shape and Effects, that some have taken them for the same Plant; some also adulterated one Species with the other, that is, the *Hermodaetyl* with the *Labia*.

The *Arabians* attribute to this *Caaba* a Virtue of augmenting the Body in Bulk; and the Women use it for that Purpose, and to give themselves a portly Figure. The *Behem* has the same Property, as *Avicenna* assures us: This is call'd by the later *Greeks* *Ἑρμωδάκτυλον*. Whenever we meet with *Hermodaetyl* in these Authors simply mention'd, we are to understand it of the *Pentaphyllum*, or of one of the two Species of *Ephemeron*; but whenever we find in *Myrepsus* and others *Ἑρμωδάκτυλος λευκός καὶ ερυθρός*, "the white and red *Hermodaetyl*," we are to take them for the white and red *Behem*. *Myrepsus* commonly mixes them with *Cardiacs*, for comforting the Heart, and strengthening a weak Body, and for curing the Palpitation of the Heart; for which Purpose both Sorts of the *Ben* are endued with a singular Virtue, according to *Avicenna*, and other *Arabian* Authors.

Since the red and white *Hermodaetyls* are both Ingredients in the same compound Medicine, that they cannot be the same with the red and white *Hermodaetyl* of the *Arabians*, may very well be inferred from these last being accounted of different Properties, so as to be unqualify'd for entering the same Composition; and the red *Hermodaetyl*, which is the *Κολχικόν*, is accounted rank Poison both by *Greeks* and *Latins*, and has no Place in Medicine, except it be in the way of killing; upon which Account therefore it can have no Place at all in Medicine, which rather provides a Remedy against noxious things, than uses them as a Remedy. It is said, that a Decoction of the Leaves of *Hermodaetyls* in Water, being drank, mitigates Pains in the Joints, which must be understood of the white *Hermodaetyl* or *Ephemeron*, which has no deleterious Quality. In *Myrepsus* there is an *Ἀντίδοτος* *σι* *Ἑρμωδάκτυλου* for the Gout in the Feet and Joints, which can be understood of no other than of the *Hermodaetyl* with the long Root. Therefore *Brassavolus* is in an Error, when, following *Mesue*, he says, that the round *Hermodaetyl* is of more Efficacy towards these Intentions, for which he would have them understood to be effectual, that is, for Affections of the Joints; for the round *Hermodaetyl*, which is the *Colchian*, does not agree with the Joints, and cannot be taken inwardly for the Joints, without being pernicious. By the round *Hermodaetyl* we are certainly to understand the *Colchian* with the round and bulbous Root; for the other with the long Root may be called the *Ἑρμωδάκτυλον μακρόν*, "the long *Hermodaetyl*."

Upon the Whole, the *Hermodaetyls* of the *Greeks* are different from those of the *Arabians*. These call the Flower of the Herb *Surengian*, the Fingers of Mercury, by which Name they call both Species of *Ephemeron*. And the *Greeks* bestow the Name of *Ἑρμωδάκτυλον λευκόν καὶ ερυθρόν*, "the white and red *Hermodaetyl*," on what the *Arabians* call the white and red *Behem*. They also call the *Buzidan* of the *Arabians*, which is like the white *Behem*, by the Name of *Hermodaetyl*. They will have it to be a Species of *Satyrion*, and so *Serapion* expounds it. The vulgar Appellation for it is *Satyrion Bassicum*, but the Shops call it *Palma Christi*. Very learned Physicians maintain, that the *Buzidan* of the *Arabians* is the same as *Avicenna's* Citron-fingers. *Brassavolus*, who is followed by *Fuchsius*, says, that *Avicenna* treated of the *Buzidan*, which he corruptly call'd *Bucheidan*, under the Title of Citron-fingers. But there are two Chapters in *Avicenna* of the *Buzidan*, and the Citron-fingers, and they are quite different things. This Author indeed uses to give the different Appellation of the same thing in distinct Chapters, but then he always gives Notice of it. The Citron-fingers, or *Asaba safra*, are shaped, as he says himself, like the Palm of the Hand. He calls it *akaf*, which is the same as the *Hebrew* *קפ*, *Chaph*, and properly signifies the Palm, or hollow

Part of the Hand, from the Verb *קפץ*, which is to bend or incurvate. Hence *Cochleare* also comes to signify both a concave Instrument, and the Sole of the Foot. An old *Latino-Arabic* Lexicon interprets it by *Pugillum*, and *Alapa*, because it is given with the flat Hand; whence comes *depalmare*, *κολαπίζειν*, "to strike with the flat Hand." This Root is commonly called *Palma Christi*, from the same Likeness. *Avicenna* speaks of the Citron-finger as a common Root; but the *Buzidan*, he says, is brought from *India*. The Citron-fingers shew this Colour by their Name; but the *Buzidan* is white. *Serapion* says it is like the white *Behem*, that it was also white itself, and an *Indian* Drug. Therefore the *Buzidan* can never seem to be the same with the Citron-fingers. Nor is *Julius Scaliger* nearer the Truth in saying, that it is the same with what the *French* Painters call *Terramenta*, which is the *Curcuma* (*Turmeric*) of the Shops, and therefore different from the Citron-fingers. *Salmas. de Homonym. Hyl. Iatrices, Cap. 116.*

The Sorts of *Behen* commonly known are the following:

Behen album, Geoff. Tractat. 286. *Behen album Rauwolfii*, J. B. 3. 37. *Behen album Rauwolfii, folio lapathi, flore luteo, & radice longa flexili*, Chab. 448. *Behmen aliud*, Park. Theat. 1572. *Jacca Syriaca spinosa, folio laciniato, flore luteo*, Rauwolf. Itin. Ed. Angl. 231. *Jacca Orientalis patula, carthami facie, flore luteo magno*, Tourn. Cor. 32. Rai Hist. 3. App. 104. *Serratula affinis capitulo squamoso luteo, ut & flore*, C. B. Pin. 235. *Raphanticoides lutea, foliis inferioribus dissectis, cæteris carthami*, Vaill. Mem. Acad. Scienc. Anno 1718. 1. 229. WHITE BEAN OF THE ANTIENTS.

Authors distinguish two Sorts of *Ben*, white and red, but both are different from the *Arabian Ben*, which is the *Glans Unguentaria*, Offic.

White *Ben* is a Root, which *Rauwolfius* found at the Foot of Mount *Libanus*, and which *Tournefort* brought from the Lesser *Asia*. The Plant to which it belongs is named *Jacca Orientalis, carthami facie*, J. R. H. according to *Vaillant*. It is cordial, antispasmodic, and good to kill Worms. Geoff.

Behen album, Offic. Ger. 550. Emac. 679. Mer. Pin. 14. *Behen album Monspelianum & Officinatum*, Merc. Bot. 1. 23. Phyt. Brit. 14. *Behen album Officinatum*, J. B. 3. 356. *Lychnis sylvestris, quæ Behen album vulgo*, C. B. Pin. 205. Rai Hist. 2. 998. Synop. 3. 337. Tourn. Inst. 335. Elem. Bot. 281. Buxb. 201. Dill. Cat. Giff. 110. Boeth. Ind. A. 211. *Lychnis sylvestris perennis, quæ Behen album vulgo*, Hist. Oxon. 2. 535. *Papaver spumeum vulg.* Herm. Cat. Hort. Lugd. Bat. 387. *Papaver spumeum, sive Ben album vulgo*, Park. Theat. 263. *Muscipula pratensis vesicaria*, P. pp. Flor. Jen. 100. SPATLING-POPPY, or WHITE BEN.

This Plant has a long, thick, whitish, woody Root, not much branched, from which spring several smooth, weak Stalks, about two Feet high, with pretty large Joints, at each of which grow two Leaves opposite to each other, without Foot-stalks, two or three Inches long, and about an Inch broad, sharp-pointed at the End, of a glaucous or bluish-green Colour, smooth, and without any Indentures about the Edges. The Flowers grow on the Tops of long Foot-stalks, several together, of five small white Leaves apiece, standing in a loose, swell'd, round Husk or Bladder, of a greenish-white Colour, with several fine darker Veins: This inclose the roundish Calyx, in which are contained small brown Seeds. This is an Herb, which is frequently to be met with in Meadows and Corn-fields, and flowers in Summer.

The Roots only are used; and, as to their Qualities, they are accounted Cordial, Cephalic, Alexipharmic, and a Provocative to Venery. It is but seldom used. *Miller's Bot. Off.*

Behen rubrum limonium & Behen rubrum, Offic. *Limonium*, Ger. 332. Emac. 411. Rai Hist. 1. 395. Synop. 3. 201. Chab. 508. *Limonium majus vulgatum*, Park. 1234. *Limonium maritimum majus*, C. B. 192. Hist. Oxon. 3. 600. Boeth. Ind. A. 76. Tourn. Inst. 342. *Limonium majus multis, aliis Behen rubrum*, J. B. 3. 876. SEA-LAVENDER, Dale.

Red *Ben* is imported in round Slices. Some believe it belongs to a Species of *Limonium*, or Sea-lavender; but its Origin is not certainly known. It is supposed to have the same Virtues as the white *Ben* of the Antients, and moreover to be astringent. Geoff.

The Root of the red *Behen*, or Sea-lavender, is pretty thick and long, and runs deep into the Earth, mostly single, with several Fibres at the End, of a brownish Colour on the Outside, and reddish within, from which arise many large, firm, thick, green Leaves, growing on long, broadish Foot-stalks, roundish at the End, and something resembling the Leaves of the Lemon-tree, whence it takes its Name. The Stalks arise to be about a Foot high, bare of Leaves, divided towards the Top into several Branches, on which grow long Spikes of small, purplish, red Flowers, of five Leaves each, growing somewhat like *Lavender*, in greenish Husks, each including one long Seed.

It grows every-where in the Salt-marshes, as below *Greenwich*, and about *Gravesend*, in great Plenty; and flowers in July and August.

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The Root and Seed is restringent, binding, and of Service in a Diarrhœa, Dysentery, against the too great Abundance of the Menfes, and the Fluor Albus.

Though neither this nor the Spatling Poppy can be certainly proved to be the true Behens of the *Arabians*, the Descriptions they give of them being so lame and imperfect; yet they are allowed by the best Authors to come near them in Virtue, and to be proper Succedanea for them. What the Druggists sell for the white *Behen* are whitish slender Roots, less than those of wild Parsnip. What they call the Red, are round transverse Slices of a Root of a reddish-brown Colour, in Shape like Jalap; but what either of them are, is hard to determine. They are of very little Use now-a-days, being not put into any Composition of the Dispensatory. *Miller's Bot. Off.*

BEID-EL-OSSAR, or BEID-EL-SSAR, an *Egyptian* Plant described by *Prosper Alpinus* and *Veslingius*, which grows near *Alexandria* at a Place called *Mattharia*, upon a Branch of the Nile called *Galig*. This Plant abounds with a milky Juice, which flows from the Leaves when cut, and is used in preparing Skins for Leather, in order to make the Hair strip off; for which Purpose the Skins are macerated in it. If taken internally, this Milk causes a violent, and sometimes fatal Dysentery; it is, however, used externally with very good Effect in the Itch, and cutaneous Foulnesses. The Leaves bruised, both raw, or boiled in Water, are apply'd successfully to cold Tumors, and Parts in Pain.

The Fruit is inclosed in a Down or sort of Cotton, softer than Silk, which is used for making Beds, or Cushions; and for Tinder.

Bees delight much in this Plant, and get from it excellent Honey.

BELEMNITES, *Lapis Lyncis*. *Belemnites*, *Offic. Geoff.* *Prælect.* 70. *Lapis Lyncis*, *Schrod.* 353. *Gesn. de Lap.* 92. *Belemnites*, *Worm.* 70. *Charlt. Foss.* 29. *Mer. Pin.* 211. *Aldrov. Mus. Metall.* 618. *Schw.* 369. *Belemnites Lapis, seu Dactylus Idæus*, *Boet.* 476. *De Lact.* 150. *Belemnites parvus*, *Kentm.* 34. THUNDER-BOLTS.

It is sometimes written *Belenites*.

The *Belemnites* is a round oblong Stone, ending in an obtuse Point, sometimes of a white, sometimes of a gold, and sometimes of a dark Colour. Some of these Stones are solid, others hollow, and it is distinguished by Lines drawn from the Axis to the Circumference. It is commonly about an Inch in Length and Thickness, though some have been found as large as a Man's Arm, and in every one of them there is a Fissure or Slit running through its whole Length. The Name *Belemnites* comes from a *Greek* Word, which signifies the Point of an Arrow; *Dactylus Idæus*, from its resembling a Finger in Shape, and its being found in Mount *Ida*, in the Island of *Crete*; but it is dug up likewise in the *Alps*, and many other Places of *France* and *Germany*. It is without Ground taken for the *Lapis Lyncinus* of the *Antients*, since it is evident, that by that Word *Dioscorides* understood Amber, which he tells us was by some taken to be the concreted and indurated Urine of the *Lynx*. The *Germans* say, that this Stone is good against the Night-mare, and the Stone in the Kidneys. It is given in Powder, from half a Dram to a Dram, in any convenient Liquor. *Geoffroy*.

BELEMNIDES, BELENOIDES, or BELOIDES PROCESSUS. A Name for the Processus Styloides. The Process also, at the lower Part of the Ulna, from which some Ligaments arise, which connect this Bone to the Wrist, is called by these Names.

BELESON. Balsam. *Rulandus*.

BELL *seu Scirpale Bengalensium*. The Name by which *J. Bauhin* calls the COVALAM, which see. It is a tall Fruit-tree not unlike the Quince.

BELLILA, *five Frutex Indicus baccifer, fructu oblongo polyspermo*. An *Indian* Berry-bearing Shrub. A Decoction of the Root is successfully given for refrigerating the Liver, and purging off pituitous Humours. The same bruised with Water, make a good Embrocation for Pains in any Part of the Body; and apply'd to the Eyes, remove Redness and Inflammations. The Root also digested and boil'd in Oil is successfully drank by Children for Pustules in their Mouths; and a Decoction of the Bark in Oil serves for the same good Purpose. The Vapour of the Decoction of the Leaves cures external Pains. The Juices of the Leaves and Fruit put together into the Eyes, remove Specks and Films. *Raii Hist. Plant.*

BELLADONNA. A Plant thus distinguished.

Solanum lethale, *Offic. Ger.* 269. *Emac.* 340. *Raii Hist.* 1. 679. *Park. Theat.* 346. *Mer. Pin.* 114. *Solanum melanocerasus*, *C. B. Bin.* 166. *Solanum maniacum*, *Chab.* 523. *Solanum maniacum multis, seu Belladonna*, *J. B.* 3. 611. *Solanum furiosum, luride purpureo flore calathoides, Melanocerasus*, *Pluk. Almag.* 352. *Solanum somniferum*, *Merc. Bot.* 1. 70. *Phyt. Brit.* 115. *Solano congener flore campanulato vulgatius, latioribus foliis*, *Hist. Oxon.* 3. 532. *Belladonna*, *Clus. Pan.* 504. *Elem. Bot.* 68. *Raii Synop.* 3. 265. *Dill.*

B E L

Cat. Giff. 143. *Belladonna majoribus foliis & floribus*, *Tourn. Inst.* 77. *Boerh. Ind. A.* 2. 69. *Rupp. Flor. Jen.* 204. DEADLY NIGHTSHADE. *Dale*.

This is the largest of all the Nightshades, having many thick, long, spreading Roots, that shoot forth many tall, angular Stalks, to a Man's Height, or more, beset with dull green Leaves, in Shape like common Nightshade, but much larger. The Flowers are set on among the Leaves, growing singly on long Foot-stalks, and are large, hollow, and Bell-fashion'd, divided into six Segments at the Ends, of a dusky-brown greenish Colour on the Outside, and purplish within, which are succeeded by large, round, thinning, black Berries as big as Cherries, set on a brownish Calyx, and containing a purplish juicy Pulp of a nauseous sweet Taste, full of small flat Seeds. It grows in several Parts of *England*, but not very frequently. It is to be found in a Ditch at the End of *Goswell-street*, in the Road to *Issington*; in *Cuckstone*, near *Rocheester* in *Kent*, all the Yards and Backsides are over-run with it. *Miller's Bot. Off.*

The Fruits of this Plant taken internally are very dangerous, as appears by several Histories which occur among Botanic Writers. The Painters in Miniature macerate it, and obtain a fine Green from it. The Leaves of *Belladonna* are great Sweeteners and Resolvents; they are applied to the Piles and Cancers. Some boil them with Whey, or make use of their Juice. Mr. Ray confirms these Uses of it, especially in carcinomatous Ulcers and Indurations of the Breasts. *Martyn's Tournefort*.

In the Month of *August* some Children of *Grandvaux*, a Village four Leagues from *Paris*, having got into an uncultivated Garden, they eat of the Fruit of deadly Nightshade, or *Melanocerasus*. Some time after they had a violent Fever, with Convulsions, and terrible Palpitations at the Heart, they knew nobody about them, and intirely lost their Understanding. A little Boy of four Years of Age died the Day after. They found three Wounds in his Stomach, with the Berries of the Nightshade bruised, and the Seeds sticking in the Wounds; the Heart livid, and no Water in the Pericardium. Mr. *Boulduc* communicated this to the Academy. *Hist. de l'Acad. Roy. de Scienc. A.* 1703.

Our own Country will furnish us with many Instances of the same Kind from eating by Mistake the Berries or Leaves of this Plant. I know a Gentleman, who had a Tenant, and his Wife, his Father-in-law, and Children, driven out of their Senses for some time, by eating Herbs boiled with Bacon in the Spring, amongst which were the young Shoots of the *Belladonna*. A Hound also who eat the Broth had the same Fate, but they all recovered in a few Days.

The Plant takes the Name of *Belladonna* from the Use which the *Italian* Ladies apply it to; for of the Juice, or distill'd Water, they make a sort of Cosmetic, with which they wash their Faces, in order to take away a too florid Colour.

Notwithstanding the deleterious Effects of this Plant, some have ventured to give an Infusion of it in Wine, as a Remedy for a Dysentery. And others have given a very small Quantity of the Juice boiled up with Sugar to a Syrup, as a Narcotic. But this Practice is rather empirical than rational, and, at best, very hazardous.

As to the Cure of Disorder from taking this Plant, *Gerard* relates a Story of three Children at *Hillich*, in the Isle of *Elby*, who eat of the Berries; two of these dy'd, and the third was vomited plentifully, by drinking copiously of Honey and Water, and recovered.

Ray, from *Hachstetterus*, relates a History of a Mendicant Friar at *Rome*, who drank an Intution of this Nightshade in Wine; the Consequence of which was, that he lost his Senses, but was brought to himself by drinking a Glass of Vinegar.

BELLARIA. Sweet Cakes, Tarts, or any sort of Confectionary Ware used for Desserts.

BELLERICÆ. An Epithet for a particular Species of *Myrobalani*. See MYROBALANI.

BELVEDERE. The *Italian* Name for the *Scoparia*, Bushy, or Besom-toadflax.

BELLICULUS, or BELLIRICUS MARINUS. A Species of Shell-fish like the Periwinkle.

BELLIS MAJOR, *Offic. J. B.* 3. 114. *Chab.* 362. *Ger.* 509. *Emac.* 634. *Schw.* 28. *Raii Hist.* 1. 350. *Synop.* 91. *Bellis major vulgaris five sylvestris*, *Park.* 528. *Bellis sylvestris caule folioso major*, *C. B.* 261. *Bellis polycelanos sylvestris major, caule folioso*, *Hist. Oxon.* 3. 28. *Leucanthemum vulgare*, *Elem. Bot.* 393. *Tourn. Inst.* 492. *Boerh. Ind. A.* 107. *Dill. Cat.* 82. *Bellidioides vulgaris*, *Aët. Reg. Par. An.* 1720. 281. OX-EYE DAISY. *Dale*.

The Leaves of this Daisy are long and round at the End, serrated about the Edges, growing narrower towards the Root, and ending in long broad Foot-stalks: The Stalks are to be a Foot or more in Height, fluted and clothed with smaller and narrower Leaves, having large flowers growing on their Top, composed of several broad white Petals, set about a broad yellow Thrum, made up of a Number of hollow Flowers thrust close together. The Root is small, slender, and creeping. It

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grows in Pasture-grounds, and in the Borders of Fields; and flowers in June.

The Flowers of this Daisy are chiefly used, and commonly go under the Name of Ox-eye; they are of a balsamic Nature, and are accounted good for all Disorders of the Breast and Lungs, as Coughs, Shortness of Breath, Pleurisy, Consumption, and Wasting of the Flesh. They are helpful against inward Bruises and Wounds, and Ruptures, and are often put in Apozems and Decoctions for the aforesaid Purposes. *Miller's Bot. Off.*

BELLIS MINOR, *Symphytum minimum*, *Consolida minima*, Offic. *Bellis sylvestris minor*, C. B. 261. Aët. Reg. Par. An. 1720. 278. Raii Hist. 1. 349. Synop. 91. Tourin. Inst. 491. Elem. Bot. 392. Dill. Cat. 46. Boerh. Ind. A. 108. *Bellis minor sylvestris simplex*, Park 531. *Bellis minor sylvestris*, Ger. 510. Emac. 636. *Bellis minor sylvestris spontanea*, J. B. 3. 111. Chab. 361. *Bellis minor pratensis seu vulgaris*, Hist. Oxon. 3. 31. **COMMON DAISY**. Dale.

The Root of the common Daisy is a thick Bunch of Fibres; the Leaves grow in a Circle close to the Ground, being thick and fleshy, and are long and narrow at the Bottom, ending broad and round, not much bigger than a Silver Penny, with very few Indentings about the Edges: The Flowers spring immediately from the Roots, upon slender Stalks three or four Inches high, bearing one small single Flower at the End, made of a Border of white Petals, or Leaves, set about a yellow Thrum; sometimes the Border is edg'd with a reddish Colour, and red underneath. The Seed is whitish, slender, and flat. Daisies grow every-where in the Fields and Meadows, and flower in April and May.

The Leaves, and sometimes the Roots, are used, and are reckon'd among the traumatic and vulnerary Plants, being used in Wound-drinks, and are accounted good to dissolve congeal'd and coagulated Blood, to help the Pleurisy and Peripneumony. In the King's-evil, the Decoction given inwardly, and a Cataplasm of the Leaves applied outwardly, are esteem'd by some extraordinary Remedies. *Miller's Bot. Off.*

Its Leaves are acrid, glutinous, and give hardly any Tincture of red to the blue Paper, which shews that its Salt is not very different from that which is natural in the Earth; that is, composed of Sal Ammoniac, Nitre, and marine Salt, involved in a great deal of Sulphur and Earth, which thicken the Sap of the Daisies, and render it viscous. This Plant, taken in a Ptisan or Extract, dissolves the Blood which is thicken'd by too cold an Air, as often happens in Inflammations of the Lungs; it takes away Obstructions, facilitates the Circulation of the Blood, and restores the Fibres to their natural Elasticity; for which Reason it is thought to be very vulnerary. *Ruellius* affirms, that a Cataplasm, made with Daisies and Mugwort, dissolves scrophulous Tumors, and those wherein there is an Inflammation, and gives Ease to those who are troubled with the Gout or Palsy. *Martyn's Tournefort*.

There are several other Plants which go by the Name of *Bellis*. Thus the *Aphyllantes Anguillæ*, or *Globularia*, is call'd *Bellis cerulea Mompeliaca*. See **GLOBULARIA**.

BELLOCULUS. A Sort of precious Stone resembling an Eye, and from hence superstitiously said to be good in Disorders thereof.

BELLON. A Distemper very common in *Derbyshire*, and other Countries where they smelt Lead-ore, to which Beasts, and even Poultry, as well as Men, are subject; and, for this Reason, a certain Space round the Smelting-houses is called *Bellon-ground*, where it is dangerous for any Animal to feed.

This Disorder is attended with Languors, Weakness, intolerable Pains, and Sensation of Gripings in the Belly, and generally Costiveness; and very frequently proves fatal.

The Method of Cure which has been found most successful on this Distemper, is, to give Cremor, or Crystals of Tartar, in small Doses, and to repeat them frequently, for Example, two or three times a Day.

I must not omit remarking, that I have twice met with Disorders much resembling this, from the taking *Saccharum Saturni*, as a Remedy for the Fluor Albus; for which Reason I look upon it as a very dangerous Medicine. See **PLUMBUM**.

BELLONIA. This Plant was so named by Father *Plumier*, in Honour of the famous *Petrus Bellonius*, who has left many valuable Tracts on Natural History.

The Characters are;

It hath a wheel-shap'd Flower, consisting of one Leaf, and divided at the Top into several Parts; from whose Cup arises the Pointal, fix'd in the Middle of the Flower like a Nail: The Flower-cup afterward becomes a hard oval pointed Fruit, in which are contained many small Seeds.

We have but one Species of this Plant; that is, the *Bellonia frutescens, folio melissæ aspero*. Plum. Nov. Gen. **SHRUBBY BELLONIA, WITH A ROUGH BALM-LEAF**.

There is no Medicinal Virtue attributed to this Plant, that I know of. *Miller's Dictionary*.

BELMUSCUS. See **ABELMUSCUS**.

BELONE, *Balon*. A Needle. See **ACUT**.

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BELONOIDES. See **BELEMNOIDES**.

BELOERE. An *Indian* evergreen Plant. The Leaves powder'd purge with too much Violence. The Seeds bruis'd, and taken warm, purge more moderately. *Raii Hist. Plant.*

BELOS. *Βίλος*. An Arrow, or Dart. This Word only belongs to Medicine, as it is a Cause of Wounds.

BELULCUM. From *Βίλος*, an Arrow, and *ελαω*, to draw. An Instrument for the Extraction of Darts or Arrows, of which many are describ'd by surgical Writers.

BELUTTA TSJAMPACAM. The Name of a very large Tree, which grows in *Malabar*.

The Root bruis'd with fresh Ginger, and taken internally, powerfully excites Sweat. The Bark also taken, or powder'd, and sprinkled on a Wound made by the Bite of a Serpent, cures it. Cataplasms are made of the Leaves, boil'd in new Milk, with an Addition of Palm-oil, which, applied to the Top of the Head, are said to discuss viscid and pituitous Humours collected in the Brain, to attenuate them, and to discharge them by the Nose. A Decoction of the Leaves, drank, attenuates viscid Phlegm, and, by this means, cures a Cough. The Fruit, when fresh, boil'd in Honey, loosen the Belly; but, when dry, are astringent. From these also an Oil is express'd, which agreeably removes Pains of the Limbs, if they are anointed with it. *Raii Hist. Plant.*

BELZOINUM, the same as **BENZOINUM**, which see.

BEN. The *BALANUS MYREPTICA*, which see. See also **BEHEM**.

BENATH. The *Arabic* Name for small Pustules, which rise in the Night after sweating.

BENEDICTUS, Blessed. A pompous Epithet given to some Plants; as the *Carduus Benedictus*, and the *Herba Benedicta*, which is the same as the *Caryophyllata*, *Avens*.

It is also given to many Compositions. Thus the emetic Infusion of *Crocus Metallorum* is call'd sometimes *Aqua Benedicta*; and, amongst the Alchymists, the Philosophers-stone goes by the same Name, as well as by that of *Lapis Benedictus*: But *Mynsicht* gives the Name of *Aqua Benedicta* to a Water distill'd from the *Serpyllum*. *Rates* gives two Waters, each under the Name of *Aqua Benedicta*, the first of which only differs from the *Aqua Calcis*, in the Proportion of the Water to the Lime. As thus:

AQUA BENEDICTA BATEL.

Take Quick-lime, one Pound; and pour upon it eight Pounds of boiling Water; alter some time settling, pour it off by Inclination, and filtre for Use.

This stands commended for an extraordinary Medicine in many Cases of Obstinacy; and, if it be drank, three or four Ounces, three or four times a Day, is said to cure red pimpled Faces, Struams, Dysenteries, the Fluor Albus, rheumatic Pains, and the Diabetes. It is certainly a powerful Drier, and very proper to use in Decoctions of the Woods, and all Ingredients of that Intention; but tho' the making of it is easy enough, yet, here in *London*, it may be had at any time from the Sugar-bakers, by the Name of Lime-water, as it happens to be wanted, because they use it much in refining their Sugars. This is also much prais'd for cleansing and drying up old foul Ulcers, both by its internal Use, and washing them frequently with it.

AQUA BENEDICTA COMPOSITA BATEL.

Take of fresh Liquorice, an Ounce; Sassafras-bark, half an Ounce; ston'd Raisins, six Ounces; Nutmegs, six Drams; of the preceding *Aqua Benedicta*, six Pints. Infuse cold for two Days, and strain off the Liquor.

The Virtues are the same as those of the *Aqua Benedicta* preceding, but of more Efficacy in some Cases.

BENEDICTA LAXATIVA: The Blessed Laxative, from the College.

Take of choice Turpeth, ten Drams; of Diagrydium, the Bark of Spurge-root prepar'd, and Hermodactyls, of each five Drams; the Seeds of Anise and Fennel, of each half an Ounce; of Sal Gem, one Ounce; of clarify'd Honey, three times the Quantity of the rest, so as to make into an Electuary.

This is originally taken from *Nicolaus*, both by the College, into their first Dispensatory, and by the Augustan, with very little Variation; and it hath so continu'd down to the present Reformation of our College, who have now reject'd many needless Spices and Carminatives, which were crowd'd into it under the Notion of Correctors, here being a Sufficiency retain'd for such Purposes. *Zwelfer* says, that some have order'd double the Quantity of the Spurge-root; but thinks, that, as it stands here, it is enough; and that even that requires a due Preparation, which is, by infusing it three Days in very sharp Vinegar,

B E N

gar, and then drying it. It is, however, so wholly neglected by the present Practice, that it is never made in the Shops. *Quincy's Dispensatory.*

BENEOLENTIA. Sweets, or sweet-smelling Medicines.

BENGI-EIRI. A Species of evergreen *Indian* Ricinus is thus call'd, which grows in *Malabar*.

The Leaves powder'd, and sprinkled upon Ulcers, destroy luxuriant and fungous Flesh; of the Leaves also, bruised, and mix'd with Cows Dung, and sew'd together in a Bag, a very good Topic is made for any Parts affected with Convulsions. *Raii Hist. Plant.*

BENIGNUS. Mild, gentle. It is apply'd to Diseases which are not virulent, and to Medicines which operate gently.

BENINGANIO. A Fruit which grows in the Bay of *St. Augustine*, of the Size of a Lemon, red without, and which is very grateful to the Stomach. *Raii Hist. Plant.*

BENZOINUM.

Benzoin, Benzoinum, Offic. Benzoin, Comm. Plant. Usual. 87. *Park. Theat.* 1572. *Boerh. Ind. A.* 2. 259. *Benzoin, Asa dulcis, Mont. Exot.* 11. *Belzoinum Officinatum, Jonsf. Dendr.* 355. *C. B. Pin.* 503. *Raii Hist.* 2. 1845. *Benjoinum, Chab.* 74. *Benjoinum, cujus arbor folio citri, J. B.* 1. 328. *Arbor Benzoini Grimmii, Ephem. Germ. A.* 11. 376. f. 31. *Arbor Benzoinifera, Breyn. Prod.* 2. 16. *Arbor Virginiana pisaminis folio baccata, Benzoinum redolens, Pluk. Almag.* 42. *Phytog. Tab.* 139. f. 3. & 4. *Arbor Virginiana, citriæ vel limoniæ folio, Benzoinum fundens, Hortus Amstel.* 1. 187. f. 97. *Benjui Garziae, Clus. Exot.* 155. **THE BENJAMIN-TREE.** *Dale.*

This is called *Asa dulcis, Asa odorata, Belzoë, Benzoe, Gummi Benzoe, Benzoinum, and Belzoinum*. It is a Gum of an agreeable and fragrant Smell, produced in the *East Indies* by a large and high Tree, which bears long Leaves, like those of the Citron and Lemon-tree, though somewhat smaller, and not so green; they are also whitish on one Side. This Tree is called by *Herm. Nic. Grim. in Ephem. N. C. Dec.* 2. *An.* 1. *Obs.* 152. *Arbor Benzoini*. By *Jac. Breynia in Prodrum. Benzoinifera*. By *Garzia, Benioifera*; and by *Chabræus, Benioi Arbor*. Some take it for the *Cyrenæic Lasepitium*, or ferulaceous Juice, formerly found very good in the Country of the *Cyrenians*; hence 'tis called *Liquor Sirenaicus, or Cyrenæicus*. *Jac. Bontius* says, it is produced in great Plenty in *Zeilon, Sumatra, Siam, Cambodia, Java, and Malacca*; but the best Sort comes from *Beninas and Bairos*. It is imported to us quite dry. Some write, that it is composed of several Pieces of different Colours. The best is hard, solid, shining and transparent, has white Spots in it, and is of an agreeable Flavour. It is by some called *Amygdaloides*, on account of its white Spots, which resemble a blanch'd Almond. See *Ol. Worm. Mus. C.* 34. *Joh. Dan. Horst. Pharmac. Part.* 1. L. 6. C. 260. *Erasim. Franciscus*. The Brown and Black, though of an agreeable Smell, are yet far from being so good as the other Sort, on account of some Impurities, with which they are mixed. It is of a warming, drying, dissolving, and purifying Nature; resists Putrefaction, is good against Disorders of the Breast and Lungs, and cures Oppression of the *Thorax*. It is very rarely used internally; but yet the Flowers, the Magistery and Tincture prepared from it in the Apothecaries Shops, are of singular Service in Coughs, Oppressions of the Breast, Ulcers of the Lungs. In Obstructions of the Menstrues, the Flowers taken in a poach'd Egg are of singular Service. *Amatus Lusitanus*, with these Flowers, and Flowers of Sulphur, happily cured an inveterate Cough, *Cent. 6. Cur.* 90. *Jo. Beguinus*, in his *Tyrocin. Chym. L.* 2. C. 28. asserts, that they are good for Asthmas, and all Disorders of the Lungs. The Commentator on the same Chapter commends them in inveterate Phthyses and Asthmas. *Fabr. Bartolet. L. 5. de Dyspn. C.* 1. says a great deal concerning it in Disorders of the Breast, and Defects in Respiration, and calls it the Balsam of the Lungs. But *Marcus Banzer* endeavours to demonstrate the contrary, *Controvers. Medico-miscellan. Dec.* 4. *Thes.* 7. and asserts, that its Flowers are hurtful in a Phthisis, and other Disorders of the Lungs. The Flowers have a more disagreeable Taste than the Gum itself. Externally it is used in all fragrant Compositions; for it proves cordial by its agreeable Smell, fortifies the Senses; by its Steam, dries up the cold Humours of the *Cerebellum*, dissipates Defluxions, and cures Tooth-achs. However, in burning the Benzoin, we ought to take particular Care not to swallow a great deal of the Smoke, because it not only affects very quickly the *Cerebellum*, but also acts with such Force upon the Breast and Lungs, that 'tis ready to destroy Respiration. There is also a Cosmetic Tincture made of Benzoin, in this manner:

Take of Benzoin, and Storax Calamita, each an Ounce: After reducing them to a Powder, and putting them into a Phil, pour upon them four or six Ounces of rectified Spirit of Wine; put it in a warm Place, and let it remain in it, shaking it now-and-then till the Tincture is extracted; then filtrate it through Paper; put some of it into Rose-

B E N

water, Water of the Flowers of Beans, or any such Water

It suddenly turns the Water into which it is put to a milky Colour; for which Reason 'tis called *Lac Virginis*, or Virgin-milk. With this the Face is to be washed. It carries off all Spots, and renders the Skin white, clear and pure. It carries off Blotches contracted by the *Lues Venerea, P. Amman. Manuduct. ad Mater. Med. p.* 122. It also removes Tooth-achs, if applied on a little Cotton. See also *Collect. Chym. Leydens. C.* 94. and 95. and *Chem. Rational. P. T. C.* 1. *Artic.* 10. As also the *Dispensat. Brandenburg. p.* 170. Its odoriferous Oil also purifies and heals the Skin, if diluted in Spirit of Wine, or the White of an Egg, *Barth. Zorn Botanolog.*

Benzoin is a resinous, inflammable Substance, sometimes of a reddish, sometimes of a pale Colour, and generally very foul. When it is cover'd with white Spots, it is call'd *Benzoinum Amygdaloides*. It is of an agreeable Taste, a little acrid, and is much used in Perfumes. It is not certain, that this Juice was known to the Antients. It is brought from the *Philippine Islands*, from *Siam* and *Sumatra*. *M. Grimm* has describ'd the Tree which produces it, and the Manner of preparing it, in the *Ephemerides Naturæ Curiosorum, An.* 1. *Dec.* 2. It is very proper in Asthmas, to attenuate the Phlegm which oppresses the Lungs, and in Ulcers of that Part; but the Flowers of Benjamin are prefer'd for internal Use. *Goffroy.*

It is the resinous Gum of a Tree which grows in the *East-Indies*; the best in *Siam*, taken from young Trees of five or six Years Growth, whose Bark they cut right down in several Places in the upper Part of the Tree, from whence this Gum flows out; which, at first, is soft and glutinous, hardening in time. The Tree bears large Citron-like Leaves, but of a paler Green, and whitish underneath: The Fruit is about the Bigness of a Nutmeg, somewhat flattish, cover'd with a Bark like the outer Shell of a Walnut, but somewhat downy on the Outside. *Miller's Bot. Off.*

The Druggists generally keep two Kinds of Benzoin, that in Tears, as 'tis call'd, and another Sort. The true Benzoin, which was imported into *France* by the People in the Embassy of *Siam's* Retinue, was, externally, of a yellowish-gold Colour; but white internally, with small, clear, white and red Veins distributed thro' it: It was friable, and without any Taste, but of a very agreeable and highly aromatic Smell. It differ'd very much from that Benzoin in Tears which is commonly sold, which is a clear and transparent Mass, of a reddish Colour, and mix'd with whitish Tears, resembling Almonds, for which Reason 'tis call'd *Amygdaloide Benzoin*.

This last-mention'd Species ought to be chosen with Qualities as much approaching to the former as possible; and it ought, above all things, to be pure, and free from Dregs, a Property with which 'tis very rarely to be found.

The other Sort of Benzoin is the most common of all, and very often counterfeited by a Fusion of several Gums together. The best of this Kind is pure, of an agreeable Smell, very resinous, and intermix'd with a great many whitish Tears: That which is black, and without any Smell, is absolutely to be rejected. *Savary.*

Preparations of BENZOIN, or BENJAMIN.

TINCTURE of BENJAMIN.

Let Benjamin, which spontaneously flows from its Tree in Plenty, be ground to Powder, and boil'd in a Glas Vessel, with Spirit of Wine once rectified, without any farther Preparation; and thus it resolves into a red and sweet-scented Liquor, which, being decanted clear, and more Spirit pour'd to the Remainder, and boil'd therewith, nearly the whole Body of the Benjamin is thus dissolved, except a little shaggy Matter. But if the Alcohol were perfect, and boil'd in this manner with the Benjamin, the Tincture becomes the richer. They are both of them odoriferous, and of a warm, bitterish, and balsamic Taste.

R E M A R K S.

Hence it appears, that an unctuous Refin may be perfectly and totally dissolved in Alcohol, so as therewith to appear in the Form of a considerably homogeneous and thin Liquor; a little whereof being pour'd to a large Proportion of Oil, the Mixture immediately turns white, opaque, and milky, thence call'd *Virgin's Milk*; because, if the Face be wash'd therewith, it becomes rosy and soft, and cover'd with a thin shining Skin, if suffer'd to dry spontaneously. This Mixture, therefore, is esteem'd an innocent Cosmetic; and, when mix'd with Wash-balls, renders them of an agreeable Odour. This Refin of Benjamin is wonderfully volatile, with a small Degree of Heat, and spontaneously dissolves in Alcohol without Alkali. *Boerhaave's Chymistry.*

This is somewhat different from that quoted from *Zorn*.

TINCTURE

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TINCTURE of BENJAMIN. *From Quincy.*

Powder four Ounces of select Benjamin; put it into a Matrafs, and add to it tartariz'd Spirit of Wine, one Pound. Fit the Matrafs to a Cucurbit; lute the Joint, and set it in a warm Sand for three or four Days, now-and-then shaking it about. In that time there will be made a fine Tincture, which decant, and keep for Use.

This is good in Asthmas, and other Distempers of the Lungs, given from twenty to sixty or seventy Drops, in any convenient Vehicle. But it is most used externally, to smooth the Skin, and take Spots off the Face: One Dram of it, put into four Ounces of clean Water, turns it white, and is call'd *Virgin's Milk*. To this Tincture may be added, of Storax, one Ounce; and Balsam of *Perru*, one Dram; which will render not only the Scent more grateful, and make a deeper Tinge in the Spirit, but be also better for inward Use.

These three Tinctures only differ as to the Ingredients added to the Spirit, with the Benjamin.

FLORES BENZOINI: *Flowers of Benjamin.*

Put into a subliming Pot two or three Ounces of Benjamin, in gross Powder; set on its Cover, without luting; keep it in the second Degree of Fire in Sand, or immediately over a small Fire of Charcoal. The Flowers will presently begin to rise into the Cover, which, once in an Hour, or an Hour and an half, must be taken off, and wiped out, upon a clean Sheet of Paper, with a Feather. There ought to be two Covers to one Bottom in Readiness, that one may be clapp'd on as soon as the other is off. When the Flowers begin to rise yellow, take the melted Benjamin out of the Pot with a Spoon, and put into it more powder'd Benjamin, as at the first; and so proceed until there are as many Flowers as desired.

In this Operation Care must be taken, that the Fire be not too strong, because it will throw up some Oil, and discolour the Flowers. These are a wonderful Pectoral, and particularly in Asthmas; for they greatly attenuate, and open viscous Obstructions, and cleanse the Bronchia. They are convenient almost in any Form, and give a very grateful Scent to any Composition. Their Dose is from three to ten or twelve Grains.

OLEUM & SPIRITUS BENZOINI: *Oil and Spirit of Benjamin.*

Take of the black melted Benjamin, which remains after the Sublimation of the Flowers, one Pound; put it into a Retort, which place in a Sand-furnace; cover it well with Sand, lute on its Receiver, and make a Fire of the first Degree for one Hour; then increase to the second, and there will come over some Oil and Spirit, with some discolour'd Flowers: Augment the Fire to the third Degree, and at last to the fourth, till no Fumes appear, and there will be a blackish Oil, with an acid Spirit; and the Neck of the Retort will be fill'd with the discolour'd Flowers, which may be taken out, and put upon a clean brown Paper, to suck up the Oil.

These Flowers, tho' not so beautiful, are as good for Use as the former; and tho' the Oil, Spirit, and Flowers, acquire for the present an empyreumatical Scent, in six or eight Months that will wear off, and they become very fragrant.

After the same manner may be made the Oil, Spirit, and Flowers, or volatile Salt, of any Balsams; as that of *Tolu*, *Perru*, and the like. The Spirit is diuretic, but not very pleasant, by reason of its Empyreuma. The Oil is accounted a good Vulnerary, both in external and internal Application; and for inward Use, if two or three Ounces of it be put into a Cucurbit, which is capable of holding a Gallon of Liquor, and to it five or six Pounds of Water are added, and the Whole is set in a Sand-furnace, luting on its Head and Receiver, with a gradual Fire, till the Water is ready to boil, the spirituous Part of the Oil will come over with the Water, of a fine Amber-colour, and a fragrant Scent; which is an admirable internal Medicine, a powerful Diuretic, and by some reckon'd a Specific against the Stone and Gravel in the Kidneys and Bladder. Its Dose is from five to fifteen Drops, in a little refin'd Sugar. *Quincy's Dispensatory.*

BER. The Name of a Tree which grows in many Parts of the *East-Indies*. It bears a Fruit like the Jujeb.

BERBELICE. A Name in *Nicolaus Myrepsus* for the *Tuffilago*, Coltsfoot.

BERBERI, *Βερβερι*, according to *Athenæus*, the Name of the Shell in which Pearls are found.

BERBERIS, *Oxyacantha Galen*. Offic. *Barbaris*, Park. Theat. 361. Mer. Pin. 15. Chab. 50. *Berberis*, vel *Oxyacantha*, Ind. Med. 20. *Berberis Cresspinus*, Mont. Ind. 38. *Berberis*, Vol. I.

BER

beris dumetorum, C. P. Pin. 454. Raii Hist. 2. 1605. Synop. 3. 465. Tourn. Inst. 614. Elem. Bot. 487. Boeth. Ind. A. 2. 233. Jonsf. Dendr. 219. Dill. Cat. Giff. 66. Buxb. 36. *Berberis vulgo*, quæ & *Oxyacantha putata*, J. B. 1. 52. *Spina acida*, sive *Oxyacantha*, Ger. 1144. Emac. 1325. *Oxyacantha Galeni*, Merc. Bot. 1. 56. Phyt. Brit. 86. THE BARBERRY, or PIPPERIDGE-BUSH.

The Barberry Tree, or rather Bush, for it never grows to any great Bigness, has the outward Bark of a whitish or ash Colour, and under that another of a deep Yellow: The Branches are long and brittle, full of sharp Thorns at the Setting-on of the Leaves, which are of a roundish or oval Form, neatly denticulated or notched about the Edges, of a sourish Taste. The Flowers grow among the Leaves, in long Bunches of six Leaves apiece, of a yellow Colour, which are follow'd by round cylindrical Berries of a red Colour, and full of a sour Pulp, each having two long hard Seeds included. They grow wild in several Places, and are frequently planted in Gardens. They flower in *April* and *May*, and the Berries are ripe in *September*. The inner Bark and the Berries, with the Seed, are used.

The inner Bark is opening and attenuating, and is accounted a Specific against the Yellow-jaundice, taken either in an Infusion or Decoction. The Fruit is very cooling and restraining, and good to moisten the Mouth, and quench Thirst, in burning Fevers. The Conserve is serviceable against all kind of Looseness and Fluxes, and likewise of Use in the Jaundice.

The Seed is likewise binding and restraining, tho' it is but seldom used.

The only Official Preparation from this Tree is the Conserve of the Fruit. *Miller's Bot. Off.*

Its Root is yellow, very bitter, and gives but a faint red Colour to the blue Paper: The Juice gives it as lively a Red as Alum. This Plant, being analysed, yields a great deal of acid Liquor, a little urinous Spirit, and a good deal of Oil and Earth. The Fruit is chiefly in Use; it allwages too great a Fermentation of the Humours, especially when caused by Bile. *Tragus* affirms, that a Wine made of the Juice of its Berries will stop a Diarrhœa, Dysentery, and the Whites. The Infusion of them is given to drink. There is a Confection, a Syrup, a Jelly, and a Rob, made of them, which are used in cooling Julaps. *Simon Paulli* shews the Manner of making the essential Salt, which he calls the *Tartar of Barberries*:

Take, says he, two Pounds of the Juice of *Barberries*, and two Ounces of Lemon-juice; evaporate them very gently over the Fire, strain them, and set them to crystallize in a Cellar: These Crystals are very cooling.

In the Heat of Urine, and internal Inflammations, they dissolve Nitre in the Juice of Barberries, to make it crystallize. The Bark of the Root is astringent and deterfive. *Martyn's Tournefort.*

BERDIRAMON. A Name in *Nicolaus Myrepsus* for the *Jarus*, *Dracontium majus*, *Bistorta major*, or *Serpentaria major*, which are all the same Plant.

BEREAS. *Rulandus* explains this by *Rotundum*.

BEREDRIAS. The Name of an Ointment described by *Aetius*, *Tetrabib. 4. Serm. 4. C. 113.*

BERENI SECUM, signifies *Artemisia*, Mugwort. *Castellus.*

BERENICIUM. A Species of Nitre in *Galen* and *Attuarius*.

BERETINUS FRUCTUS. A Fruit found in the *Malacca Islands* by the Sailors, in Sir *Francis Drake's* Expedition round the World.

BERGAMOTE. A certain fragrant and cordial Essence is call'd by this Name, as also *Essentia de Cedra*. It is extracted from a kind of Lemon in *Italy*, call'd *Bergamote*; which, they say, owes its Original to an *Italian*, who took a Fancy to graft a Branch of a Lemon-tree upon the Stock of a *Bergamote* Pear-tree, whence the Lemons produced from this Union participate of both the Nature of the Citron-tree and the Pear-tree. The Inventor kept this Discovery secret for a long time, and enrich'd himself by it.

To extract the *Essentia de Cedra*, they cut the yellow or external Rind of the Lemon into small Bits, and immediately break them, one after another, by squeezing them into a Glass Vessel, in the same manner as you squeeze Orange-peel, when you have a mind to perfume a Glass of Wine: But this Vessel must have a narrow Mouth, so as not to admit more than the Ends of the two Fingers which squeeze the Rind; and even this Opening must be closed, as much as possible, after the Ends of the Fingers are enter'd within it, with some wet Parchment, in order to prevent what we labour to obtain from evaporating. It is proper, that the Vessel should be belly'd, and that its Capacity below should be far more extensive than its Neck, that the essential Part of the Rind, which was express'd by the Fingers, may have Space enough to disperse itself, and to circulate as it comes off, and to resolve itself into a Liquor. This Liquor is an ethereal Oil, very subtle, and of a charming Smell; but there

B E R

there must be a vast Number of these little Bits of *Bergamote* Lemon-peel cut up, in order to obtain a small Quantity of Essence.

The *Essentia de Cedra*, being prepar'd without the Help of Fire, in manner aforesaid, has a much more agreeable Smell, and participates of the Quality in a much greater Degree, than the Essence which might be extracted from the Rind of the Bergamote Lemon by a Separation, after the manner of other Essences.

It is a Cardiac, Stomachic, Cephalic, and is qualify'd to resist the Malignity of the Humours. The Dose is from one Drop to six. *Lemery des Drogues*.

BERIBERII. A kind of Palsy, common in some Parts of the *East-Indies*. The Name, in the Language of the Country, signifies a Sheep, and was given by the Natives to this Distemper, as *Bontius* thinks, because the Patients, in throwing out their Knees, and lifting up their Legs, seem to imitate Sheep in their Walk. It is, says he, a kind of Palsy, or rather Trembling, in which there is a Depravation of the Motion and Sensation of the Hands, Feet, and sometimes of the Body, accompanied with a Trembling.

The principal Cause of this Disorder is a gross and viscous pituitous Humour, which, in the Night-season, especially in rainy Weather, which holds without Intermission from the Beginning of *November* to the Beginning of *May*, falls upon the Nerves, while Persons, being fatigued with the Heat of the Day, throw aside their Cloaths, and lie without any Covering; by which means the phlegmatic Humour, which was before generated principally in the Brain, very easily seizes upon the Nerves; for the Nights in these Countries, compar'd with the hot Days, may be said to be cold. In this Case, the Joints are lengthen'd, the pituitous Matter insinuating itself between the Juncures, so as to relax the Nerves and Ligaments. Tho' this Disease, for the most part, comes on gradually, and by slow Advances; yet sometimes it seizes a Person on a sudden; as when, after being fatigued with Heat, he immediately takes a very plentiful Draught of the Liquor of the *Indian Palm-tree*. Thus we have sometimes seen, in our own Country, in the Season of the Dog-days, when Persons have been heated with Running, or any other vehement Motion, that a Draught of Beer, or Whey and Curds, greedily swallow'd, has thrown them into the utmost Danger of their Lives, and even proved fatal.

To proceed, the Symptoms of this Disorder are manifest to Sight; for there is a spontaneous Lassitude of the whole Body; the Motion and Sensation, especially of the Hands and Feet, are depraved; and the same Kind of throbbing Titillation is felt in them, as is felt in the Fingers and Toes in a cold Country, and in the Winter-season, only the Pain is not so great. Sometimes the Voice is so obstructed, that the Sick can hardly speak articulately. This happen'd to myself under this Disorder; for my Voice was so low for a whole Month, that those who sat close to me could scarcely understand what I said. Besides these Symptoms, there sometimes happen many others, all which, however, seem to owe their Rise to a cold and tenacious Humour; but let it suffice, that I have mention'd the principal.

Let us now betake ourselves to the Cure, which is usually very tedious, because the cold and viscid Humour is not easily and quickly dissolv'd: However, it is not mortal in its own Nature, except it falls upon the Muscles of the Breast and Thorax, and so stops the Passage of the Breath and Voice. Above all things, you must avoid, if by any Means possible, Confinement to your Bed; but bestir yourself, as much as Strength will allow, either in Walking or Riding, or any other Kind of vigorous Exercise: Running, indeed, is more than you can perform. Strong and smarting Frictions are also highly necessary, at which your *Bengal Men-servants*, and *Malacca Women*, are very dexterous; for our *European Servants* are as much unaccustomed to this Exercise as to Bathing, which is frequently used here. They prepare Fomentations and Infusions of a noble Herb called *Lagundi*, which has a Leaf like the *Poscivaria*, and is of a sweet and aromatic Smell. This Plant, I am well assured, not only does the Service of Chamomile and Melilot, but excels them, at least, in my Opinion, in its discutive and resolving Virtues. The Hands and Feet are also to be anointed with the Oils of Cloves and Mace, but mix'd with Oil of Roses; for they are too caustic, and very easily corrode the Skin, if used alone. Besides these Medicines, we have a noble kind of *Naphra*, brought from *Sumatra*, which lies over-against the Kingdom of *Java*, and in Sight of the same. This Drug the *Indians* call *Minjac Tannab*, which signifies the Oil of the Earth; because it breaks out of the Earth in the same manner as the *Naphra*, which we know, and call *Petroleum*; or bursts out of the Rock, and runs into the adjacent Rivers. This Oil is so highly valued by the Barbarians, that the King of *Achin*, who is the most powerful Prince in that Island, has forbidden its Exportation under Pain of Death; so that the Inhabitants bring it off by Stealth from the Land, in the Dead of the Night, to ours, and the *English*

B E R

Ships that happen to be near their Shores. This Oil, rubbed on the Parts affected, relieves the Patient in a miraculous manner. It is also of a strong, but not a nauseous Smell.

But since this Disease belongs to the chronic Kind, no Medicines are so effectual against it as Decoctions of the Root of China, Sarsaparilla, and Lignum Guaiacum, which, by their gentle and friendly Heat, discuss those cold and thick Humours, and evacuate them by Sweat and Urine. We must, however, now-and-then interpose some gentle Cathartic. The best of this Kind is what we here prepare of an Extract of Aloes, and what is commonly called *Gutta Cambodia*, corruptly named by us *Gutta Gamba*.

Phlebotomy is not allowed in this Case; for it is not a Plethora, but a Cacochymia, that is in Fault; and who is so ignorant as not to know, that the Blood is the Fountain of Heat, and the Treasure of Life?

The Reliques of this Disease are conveniently discussed by Venice Treacle, Mithridate, &c. and by Sudorifics, Diuretics, and such Medicines as strengthen the Nerves. Seasonable Exercise will assist Nature to overcome the other troublesome Attendants on this Disorder. *Bontius de Medicina Indorum*.

BERILLISTICA. A kind of pretended Magic Art, employed in observing preternatural Visions in Glass Mirrors, which are called *BERILLI*. *Rulandus*.

BERMUDIANA. This Plant takes its Name from the *Bermudas Islands*, from whence the Seeds of the first Species were brought.

The Characters are;

It hath lily Flowers, composed of six Petals, whose Em-palement becomes a triangular Fruit, which opens in three Parts, and is divided into three Cells, which are filled with round Seeds.

There are two Species of this Plant. *Miller's Dict.*

BERNA, or **BIRMINA**. These *Rulandus* explains by *Vas Vitreum*, a glazed Vessel.

BERNARDIA. This was so named by the late Dr. *William Houstoun*, in Honour of Dr. *Bernard de Jussieu*, Demonstrator of Plants in the Royal Garden at *Paris*.

The Characters are;

It is Male and Female in different Plants; the Male Plants produce small Katkins, which, when ripe, fall off; the Female Plants have a coccous petalous Flowers, which are succeeded by tricoccus Fruits, resembling those of the *Ricinus*.

There are four Species of this Plant.

I know of no medicinal Virtues attributed to this Plant. *Miller's Dictionary*.

BERRIONIS. Colophony, Gum Juniper, or Vernice. *Rulandus*.

BERS. A sort of Electuary which the *Egyptians* make use of out of Gaiety, in order to raise a temporary Delirium; in which they probably take the same monstrous Satisfaction as the *Europeans* do in getting drunk. The Composition is thus:

Take of white Pepper, and of the Seeds of white Henbane, each twenty Drains; Opium, ten Drains; Indian Nard, Euphorbium, and Pellitory of Spain, each one Dram; and Saffron, five Drains. Reduce all these Ingredients to a fine Powder in a Marble Mortar, and make into an Electuary, with three Parts of pure Honey.

This Electuary is not to be used till it has stood six Months. It seems to differ very little from the *Philonium Romanum*, of which *Avicenna* has given us the Receipt; and the *Egyptians* find it from Experience to be possessed of the same Virtues and Efficacy, *Prosp. Alpin*.

BERULA, Offic. Chom. 539. *Sium*, Rivin. Irr. Pent. Dill. Cat. Giff. 142. *Sium erectum umbellatum, sive Pastinaca aquatica*, Raii Hist. 1. 444. Merc. Bot. 1. 69. Phyt. Brit. 114. *Sium sive Apium palustre, foliis oblongis*, C. B. Pin. 154. Raii Synop. 3. 211. Rupp. Flor. Jen. 230. Tournef. Inst. 308. Elem. Bot. 258. Boerh. Ind. A. 55. Buxb. 305. *Sium sive Apium palustre, foliis oblongis*, Bot. Montp. 243. *Sium umbelliferum*, J. B. 3. 172. Chab. 173. *Sium medium*, Ejusd. 174. & J. B. 173. *Sium minus alterum*, Park. Theat. 1241. *Sium majus angustifolium*, Ger. Emac. 256. *Sium erectum, foliis serratis*, D. Doody. *Nasturtium aquaticum*, Ger. Icon. 200. UPRIGHT WATER PARSNIP.

It grows for the most part in moist and wet Places, and flowers in the Month of *June*. Its Leaves are only now in Use. It is esteemed an Antiscorbutic, and like the *Sium*, or Water-Parsnip, dissolves and evacuates the Stone, provokes Urine and the Menstrues, expels the Fœtus, and, it mixed with Food, is of Service in the Cure of Dysenteries. *Dale*.

BERYLLUS, Offic. Boet. 214. Calc. Mus. 221. Mont. Exot. 14. De Laet. 44. Aldrov. Mus. Metal. 952. Kentm. 47. *Berillus sive Beryllus*, Charlt. Foss. 40. **THE BERYLL.** *Dale*.

This is a precious shining and transparent Stone, the Colour of which is commonly a Sea-green; but there are some of the Colour of Oil, or of Garlick, or Pale, or Yellow, or of the Co-

B E T

four of Gold: They call this last *Chrysoberillus*; that is to say, gilded Beryl. This Stone is found in the Mines in the *Indies*, in the Island of *Zeilon*.

It is good to stop Fluxes and Hæmorrhages, being bruised and given inwardly; but it is seldom used in Medicine. *Lemery des Drogues*.

BERYTION, Βηρύτιον. The Name of a Collyrium described by *Galen*, and recommended by him for Inflammations of the Eyes. It is also the Name of a Pastil, taken Notice of by the same Author, as good in Dysenteries.

BES. A Weight. It is Two Thirds of an Integer; generally of a Pound. Eight Ounces.

BESACHAR. A Fungus, or Sponge. *Rulandus*.

BESASA. Βησασα. The *Ruta Sylvestris*, wild Rue.

BESLERIA. This Plant was named after *Basilus Bessler*, an Apothecary at *Nuremberg*, who was the Author of a Book, intituled, *Hortus Eystetensis*.

The Characters are;

It hath a Flower consisting of one Leaf, which is tubulous, and of an anomalous or perforated Figure, having two Lips; from whose Cup arises the Pointal, which is fixed like a Nail in the hinder Part of the Flower, which afterward becomes a soft, fleshy, oval-shap'd Fruit, in which are many small Seeds.

There are four Species of this Plant.

I know of no medicinal Virtues attributed to this Plant. *Miller's Dictionary*.

BESONNA. *Rulandus* explains this by *Muscarum Fungus*, I suppose he means a Sponge, which is the Nidus of some Sort of Flies.

BESSANEM. This, in *Avicenna*, signifies a Redness of the external Parts, resembling that which precedes the Leprosy. It occupies the Face and Extremities. This should seem to be what we call Chilblains.

BESTIA. Any sort of Beast.

BESTIO. A Name, in *Oribasius*, for the *Saxifraga*, *Saxifraga*.

BET A. Beet. A well-known Plant.

There are two Species of Beets, of which the black Beet, and especially its Root, boiled with Lentils, is a powerful Binder; but the white Sort keeps the Belly in a right Temper; but both of them are of bad Juice, on account of their Nitrosity; by which Quality, however, their Juice, with Honey, infused into the Nostrils, purges the Head, and helps Pains in the Ears. The Decoction of the Roots and Leaves detergeth Scurf and Nits, and mitigates Chilblains, which are fomented therewith. The crude Leaves are applied by way of Cataplasm to the Alphi; which ought first to be rubb'd with Nitre; they also serve as a Cataplasm for an Alopecia, after the Place has been scrap'd, and for spreading Ulcers. Being boil'd, they cure Eruptions of Pimples, (εξανθήματα) Burns, and Erysipelas. *Dioscorides*, Lib. 2. Cap. 149.

There is another Sort of Beet call'd *Beta Sylvestris*, or the wild Beet; of which *Dioscorides* treats under the Appellation of *Limonium*.

BETA ALBA, Offic. Ger. Emac. 318. Raii Hist. 1. 204. *Beta*, Chab. 302. *Beta alba vel pallescens, quæ Sicula & Cicla Officinarum*, Hist. Oxon. 2. 596. Boerh. Ind. A. 2. 94. *Beta communis alba*, Park. Parad. 489. Ger. 251. *Beta candida*, J. B. 2. 961. *Beta alba vel pallescens, quæ Cicla Officinarum*, C. B. 118. Tourn. Inst. 502. **WHITE BEET**. Dale.

The Root of this Plant is large and thick, growing deep in the Ground, shooting out pretty large Leaves standing on long Foot-stalks, pretty broad, and roundish pointed, and somewhat crumpled, of a fleshy and insipid Taste. The Stalks are pretty thick and angular, growing to be two Foot high or more, branch'd and beset with the like Leaves, but smaller. The Flowers grow in Clusters, of a green Colour, small and chaffy. The Seed is hard and prickly. This is usually planted in Gardens; though we have a Species of Beet which grows wild in several Places by the Sea-side.

Beets are more used as a Pot-herb, and to eat with Salt-meat, than physically. They loosen the Belly, and attemperate hot cholerick Humours. The Juice of the Roots is sometimes used as an Errhine, being snuff'd up the Nose to clear the Head of Phlegm and mucous Humours, and by that means to help old Head-achs.

The Beet is one of the Five emollient Herbs. *Miller's Bot. Off.*

BETA RUBRA, Offic. Ger. 251. Emac. 318. Raii Hist. 1. 204. Chab. 302. J. B. 2. 961. *Beta rubra vulgaris*, C. B. 118. Hist. Oxon. 2. 596. Tourn. Inst. 502. *Beta communis rubra*, Park. Parad. 489. **RED BEET**. Dale.

This grows in all respects like the former, except that it is somewhat less, and the Leaves strait; and the whole Plant, Stalk, Leaves, and especially the Root, is of a deep-red or purple Colour. It grows with the former. Its Virtues and Uses the same.

The Root is more frequently employ'd to garnish Dishes, than to any medicinal Uses. *Miller's Bot. Off.*

B E T

BETLE, Offic. *Betle frue Betre*, Ger. 1357. Emac. 1541. *Betre, Betle, Betele, frue Bethle*, Park. Theat. 1615. *Betre frue Tembul*, C. B. Pin. 410. Jonst. Dendr. 172. C. Com. Flo. Mal. 60. *Betle frue Betelle*, J. B. 1. 437. Chab. 33. *Betele*, Bont. 91. *Beetla, Codi*, Hort. Mal. 7. 29. Tab. 15. *Piper longum, foliorum nervis decurrentibus tenuioribus & mollicribus, Betle dictum*, Hist. Oxon. 3. 603. *Bulatwæla*, Herm. Mus. Zeyl. 34. **BETLE**.

This is a Plant of the scandent Kind, much celebrated in the *East-Indies*. The Leaves are principally in Use, which are esteemed best when fully ripe, and of a yellowish Colour; they are spoiled by being much handled when they are newly pulled from the Plant.

In the *Malacca* Islands, the *Betle* bears a kind of Fruit wreathed in the Form of a Lizard's Tail, which the Inhabitants of these Islands eat on account of its agreeable and grateful Taste. *Bontius* informs us, that it bears a Fruit resembling the white oblong Pepper, or rather the Tail of a Dormouse. This Fruit is, by the Inhabitants of the *Malacca* Islands, called *Sirii Boa*, and is had in much higher Esteem than the Leaves of the *Betle*. It is planted like Vines, and Props and Supports are erected for it to creep along. Some, for the sake of greater Profit, make it cling to the Trees which bear the Arcea, or *Indian Nut*, and thus form a beautiful Shade. It grows in all the Provinces of the *Indies* on Sea Coasts, but not in midland Places, or such as lie from the Sea, unless it has been transplanted to them.

Most of the antient Botanists confound the *Betle* with *Malabathrum*, or *Indian Leaf*; but they are quite different Plants, since, according to *Garcias*, the latter is a shrub Tree, whereas the former is of the scandent Kind, and stands in need of Supporters.

In the Morning, the Afternoon, the Evening, and the Night-time, the *Indians* chew the *Betle*, and carry it continually about in their Hands; but they do not use it alone upon account of its Bitterness, but wrap up the *Indian Nut*, and a little Lime, in the Leaf of the *Betle*, which they affirm to be a Mixture of a very grateful Taste. Others mix *Lycium* with the *Betle*. The Rich and Opulent use it with Camphire of *Borneo*, and some others with Aloes-wood, Musk, and Ambergrise. When thus prepar'd, it has so agreeable a Taste, and renders the Breath so sweet and fragrant, that the more wealthy of the Inhabitants chew it almost continually; and also others according to their Circumstances; tho' some chew the Arcea with Cinnamon or Cloves. These are the Circumstances, of which *Garcias* gives us an Account; but other Authors, who have travell'd themselves thro' the *Indies*, inform us, that both the rich and poor *Indians* constantly chew the Arcea alone, broken and wrapp'd up, with a little Lime, in the Leaves of the *Betle*, which sends forth so fragrant a Smell, as to fill the whole Room. Upon spitting out the first Juice, which some retain, it appears bloody, which Colour it receives from the Arcea, and not from the *Betle*. Then they take successively more Leaves, prepar'd in the same manner. Unless the *Indians* us'd this Practice, their Breaths would have a disagreeable Smell. *Bontius* asserts, that the Leaves of the *Betle*, us'd without the above-mentioned Substances, which is frequently done, corrode the Teeth, and sometimes make them drop out. In the *Indies* I myself have known young Men, not exceeding twenty-five Years of Age, entirely deprived of their Teeth, by a frequent Use of the Leaves of the *Betle*.

When they take their Leave of any one, 'tis customary to make him a Present of a silken Purse full of those Leaves thus prepar'd; and no one allows his Friend to part from him without a *Betle*, which, with them, is the Sign of taking Leave.

When they make their Addresses to the Great and Opulent, they use to chew the *Betle*, in order to give them an agreeable Breath; for, with them, not to have a perfum'd Breath, is an unpardonable Transgression of the Laws of Decorum and good Manners; and when People of a low Condition are oblig'd to converse with the Great and Opulent, they put their Hands on their Mouths, lest, perhaps, a Gust of their disagreeable Breath should prove offensive to the Nostrils of their Betters. When their Women have Business of a certain kind to transact with Men, they chew the *Betle* previously, imagining that it is an Incitement to Wantonness: Hence, when they pay their Visits, and mutual Compliments, they always have the *Betle* in their Hands; and it is every-where presented with the greatest Demonstrations of Benevolence, along with Arcea and Lime, in a wooden Vessel kept on purpose. They chew it principally after Dinner, in order to prevent Uneasiness at their Stomachs.

They sometimes use to abstain from it, when performing the funeral Rites of their near Relations, and on certain Days set apart for fasting.

It strengthens the Gums, corroborates the Heart and Stomach, dissolves Flatulences, and purges the Stomach and Brain; if chew'd in the Morning, immediately after Breakfast, it renders the Breath agreeable, but blackens the Teeth, and, according to *Bontius*, not only corrodes, but makes them fall out.

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B E T

The *Portuguese Women* imitate the *Indians* in this Particular, and are so excessively fond of chewing the *Betle*, that they think they cannot live without it. *Raii Hiftor. Plantar.*

BETONICA, Offic. Ger. 557. Emac. 714. Raii Hift. 1. 550. Synop. 3. 238. Mer. Pin. 15. Rivin. Irr. Mon. Dill. Cat. Giff. 126. *Betonica vulgaris*, Merc. Bot. 1. 23. Phyt. Brit. 15. *Betonica purpurea*, C. B. Pin. 235. Tourn. Inf. 202. Elem. Bot. 172. Boerh. Ind. A. 154. Rupp. Flor. Jen. 136. Buxb. 37. *Betonica vulgaris purpurea*, J. B. 3. 301. *Betonica vulgarior, flore purpureo*, Park. Theat. 614. *Betonica five Vetonica*, Chab. 431. **WOOD BETONY**, Dale.

The Root of *Betony* is pretty thick at the Head; whence it sends out a great Number of small Fibres, of an unpleasant nauseous Taste. The Leaves grow on pretty long Foot-stalks; somewhat wrinkled, rough and hairy, full of Veins, broader at Bottom than at the End, which is blunt-pointed; they are roundly indented about the Edges. The Stalk is four-square, about a Foot or more high, with very few Joints; at each of which stand two Leaves, one opposite to the other, on short Foot-stalks. The Flowers grow in Spikes on the Tops of the Stalks, *verticillatim*, or whorle-fashion, two small Leaves being placed under each Whorle: they are of a red purplish Colour, of one single Flower, having a round *Calca*, and a *Labella* divided into three Parts, each growing in a rough five-pointed Calyx, in which, after the Flowers are past, grow four small Seeds.

Betony grows in Woods and Thickets, and by Hedge-sides, and flowers in *May* and *June*. The Leaves and Flowers are used.

Betony is a good cephalic, hepatic, and vulnerary Plant, of so great Esteem among the Antients, that *Antonius Musa*, Physician to *Augustus Cæsar*, wrote a whole Treatise concerning it. It is very good in Pains of the Head, Convulsions, and nervous Affections. The dried Leaves, cut and mix'd with Tobacco, are frequently smok'd for the Head-ach, Vertigo, and sore Eyes. Mix'd with Wood-sage and Ground-pine, it makes a good Diet drink for the Gout and rheumatic Pains. The fresh Leaves bruis'd, are good for green Wounds, and to draw out Splinters.

The only official Preparation from this Herb is the *Emplastrum de Betonica*. *Miller's Bot. Off.*

The Leaves of this Plant have an herby Taste, are a little salubrious and aromatic, and give no Tincture of red to the blue Paper. The Flowers and Roots, which are very bitter, stain it very little. The *Betony* is full of Sulphur, mix'd with a little oily, volatile Salt and Earth.

By the chemical Analysis it affords a great deal of Oil, a little Earth, and fix'd Salt; no concreted volatile Salt, but a little vitriolous Spirit.

The *Betony* is vulnerary, aperitive, diuretic, sweetening, good for the Diseases of the Brain and lower Belly; a Tea of the Leaves is good for the Vapours, Sciatica, Gout, Pains in the Head, Jaundice, and Palsy: The Puffin of its Leaves, a cold Infusion of them in Water, the Conserve of its Flowers, the Syrup of the Flowers and Leaves, and the Juice and Extract of these Parts, have the same Virtues: They promote Expectoration, and bring away purulent Matter; they consolidate internal Ulcers, and remove Obstructions in the Bowels: A Sneezing Powder is made of the Leaves, and a vulnerary and cephalic Plaster is prepar'd with the Juice: The Roots have not the same Effect, but they purge both upwards and downwards. *Martyn's Tournefort.*

A Decoction of *Herniaria* and *Betony* is commended for the Stone in the Kidneys and Bladder. Others advise a Decoction of *Betony* to stop a Flux of the Lochia after the Birth. The Surgeons mix it in their cephalic Cataplasms. They make a Plaster of the Leaves for Wounds, especially those of the Head. *Boerhaave.*

In the old Dispensatory of the College, a Conserve of the Flowers of *Betony* was directed, which is omitted in the present. Some Authors, however, have a very great Opinion of it.

EMPLASTRUM DE BETONICA: *Betony Plaster.*

Take of green *Betony*, Pimpinell, Agrimony, Sage, Pennyroyal, Yarrow, the lesser Centaury, and Clary, each six Ounces; of Frankincense and Mastic, each two Drams; of Orice and round Birthwort, each six Drams; of Wax and Turpentine, each eight Ounces; of Resin of the Pine-tree, six Ounces; of Gum-clemi, and Oil of Firr, each two Ounces; of White-wine, three Pounds. Let the Herbs be well bruis'd in a Mortar, and stand in Maceration for a Week with the White-wine, and then stirred about and boil'd: When the Wine is pressed out, strain'd, and boil'd to the Contumption of a third Part, put to it the Oil of Firr, then the melted Wax, afterwards the Resin and Gums, and last of all the Turpentine. When these have had a gentle Boil, and been taken from the Fire, and near cooled, sift in it the Orice and Birthwort in fine

B E Z

Powder, and stir them briskly together, so as to make into a Plaster, *S. A.*

This hath pass'd thro' all the Revises of our College with little or no Alteration, but is not in any other official Dispensatory that I have met with. It requires a good deal of Care and Trouble in the Composition; yet, as it is sometimes met with in Prescription, most of the Shops are at the Pains to keep it by them.

BETONICA AQUATICA. See SCROPHULARIA.

BETONICA PAULI. See VERONICA MAS.

Betula, Offic. C. B. Pin. 427. J. B. 1. 148. Raii Hift. 2. 1410. Synop. 3. 443. Chab. 60. Ger. 1295. Emac. 1478. Park. Theat. 1408. Tourn. Inf. 588. Elem. Bot. 460. Boerh. Ind. A. 2. 182. Dill. Cat. Giff. 42. Rupp. Flor. Jen. 265. Buxb. 38. Merc. Bot. 1. 23. Phyt. Brit. 15. Mer. Pin. 15. Jonf. Dendr. 33. **THE BIRCH-TREE**. Dale.

BETULA.

This Tree grows to be tall and large, cover'd on the Outside with a whitish Bark, which it sheds yearly. It has a great Number of slender, tough, red Twigs, or small Branches, cloathed with small, roundish, green Leaves, indented about the Edges; these are preceded by little scaly round Cones, which contain the Seed. It grows in Woods in divers Parts of the Land.

The Leaves of the Birch-tree are accounted good for the Dropsy, as also for the Itch, used both inwardly and outwardly. The Liquor that flows out of this Tree, bored with an Augre in the Spring, is accounted to be very good for the Stone and Gravel, and against bloody Urine, and the Strangury. The Wood makes good Fire-wood, and, next to Juniper, is prefer'd to burn in Times of Pestilence, and contagious Distempers. *Miller's Bot. Off.*

The Bark of the Birch-tree is very fine. *Tragus* says, that he has seen, in a Library at *Coire* in *Switzerland*, Verses written upon it; they use it to this Day to make Ropes for Wells: They affirm, that the Liquor which comes out of the Trunk of this Tree, after it has been pierced with an Augre in the Spring, is very aperitive, deterfive, and cosmetic; they ascribe the same Virtues to its depurated Juice, and distill'd Water. *Martyn's Tournefort.*

BETULUS. A Tree; call'd also *OSTRYS*, which see.

BEX. *بخ*, a Cough, is nothing else but a vehement Effusion, in which a great Quantity of Breath, being hurry'd forth with vast Swiftnefs, attracts and pushes forward, by its Impetuosity, whatever obstructs its Passage; and, if it be too weak to expel the offensive Matter at the first Discharge, it fails not to renew its Effort even once and again. For the most part, it obtains its End; that is, whenever the Breath passes with a strong Current, and the obstructing Matter is dispos'd for Expulsion, as when it is neither of a watery nor viscous Substance. *Galen De Sympt. Causis, Lib. 2. Cap. 4.*

The End of a Cough is to cleanse the Passage of the Breath. *Idem, in 6. Hipp. de Morb. vulg. Com. 5.* See *TUSSIS*.

BEXUGO. This is the Root of the *Clematis Peruviana* of *Casp. Bauhine*. It is purgative, taken in the Quantity of a Dram. The *Indians* prefer it to *Mechocacan*.

BEYA, in the alchymistical Jargon, is the *Aqua Mercurialis*, Mercurial Water, which is Wife to the *Gabrien*, or *Sulphur Philosophorum*, Sulphur of the Philosophers.

BEZOAR. *Avenzoar* is the first who mentions *Bezoar* as us'd by way of Medicine, or gives its History. He says, that is best which is found in the East, near the Eyes of Stags. But that which has gone under that Name in these latter Centuries, is, according to the best Accounts, always found in the Stomach, or rather Omasum, of the Cervicapra.

This is originally a *Persian Word*, namely, *Badzcher*, or *Bazcher*, which, in that Language, signifies no more than any Substance intended to prevent the fatal Effects of Poison; and the *Persians* us'd the Word in the same Sense in which the *Greeks* us'd the Word *Antidote*, whether that Antidote was a simple or a compound Medicine. But the Word came afterwards to be peculiarly appropriated to that Species of Stone, which, by a Corruption of the *Persian Word*, we now call *Bezoar*. Some *Arabian Authors* have asserted, that this Stone was only to be found in Mines; and others, that it was to be met with in the Heads of certain Serpents: But the most judicious Authors of that Nation have given an Account, which has since been confirm'd by the Relations of several Travellers, which is, that this Stone is found in the Corners of the Eyes of such Stags as have eat Serpents; where, growing gradually bigger, by the Formation of one Crust above another, it at last acquires such a Weight, as to drop off of its own accord, and is found in the sandy Grounds of *China* and *Tibet* or *Tibet*. If applied to Wounds, occasion'd by the Bites of venomous Animals, it extracts the Poison lodg'd in them; for, as soon as it comes into Contact with a Wound of this kind, it adheres to it of its own accord; and, after having absorb'd as much of the Poison as it can contain, it discharges its venomous Contents in the Water in which it is immerfed. After which it is to be apply'd

apply'd afresh to the Wound, to which it adheres 'till it has produc'd its design'd Effect, and brought about a thorough Cure. *Herbelot Bibliothèque Orientale.*

Mr. *Herbelot* seems to give too much Credit to this Oriental Account of the Production and Virtues of *Bezoar*, which is fabulous.

Bezoar is nothing else but a Stone form'd by the Gall of several Species of Animals, found in the *East* and *West-Indies*, such as Goats, Hogs, Apes, &c. The Virtues of the *Bezoar* consist in the volatile alkaline Salts of which 'tis compos'd, since 'tis, in reality, nothing but the Bile of these Animals. 'Tis, by means of these volatile alkaline Salts that it destroys Acids, and promotes Transpiration. We have no Occasion to go far in quest of *Bezoar* Stones, since all Stones, form'd by the Gall of any Animal whatever, are such, tho' their Activity and Virtues differ according to the different Animals from which they are taken, and the different Climates in which these Animals live. The *Bezoar* Stone is also sometimes found in other Parts of these Animals besides the Gall-bladder. *Hist. de l'Acad. A. 1703.*

There are several Medicines us'd in the Practice of Physic, with regard to the Origin and true Account of which, we *Europeans* are still pretty much in the Dark: They sometimes pass thro' so many different Hands before they arrive at ours, that 'tis no easy Task to form a true Judgment of their Natures and Compositions.

Marchants, who deal in Commodities of this kind, very often know no more than the Name of the Medicines, and are more intent upon making Profit by their Sale, than enriching their Minds with a Knowledge of their Origin and Qualities. Travellers, on the other hand, have not always an Opportunity of procuring the Evidence of their Senses, in Cases of this Nature; they often rely on the Relations of others, with regard to Things they themselves have not seen. In Matters therefore of this kind, an accurate and minute Examination of any Substance is sometimes of more Use and Importance, than a great many Accounts and Relations concerning it. This Consideration induc'd me to undertake a very careful Examination of the several Substances call'd *Bezoar*, a Name given to a particular Species of Stones found in the Bodies of certain Animals. Some affirm, that the Name *Bezoar* comes originally from the *Persian* Word *Bazar* or *Pazan*, which signifies Dung or Dirt; others maintain, that it is deriv'd from the *Hebrew* or *Chaldean* Word *Belu-zaar*, which means a Medicine against Poisons.

The first Stones known under the Name of *Bezoar* were imported from the Eastern Nations; but, since the Discovery of *America*, we have had some brought to us, which resembling the former both in the Conformation of their Parts, and their medicinal Virtues, have been also call'd *Bezoars*, only with this Difference, that what comes from the *Levant* is call'd *Oriental Bezoar*, and what is imported from *America* receives the Name of *Occidental Bezoar*. There are also other stony Concretions taken from Animals, which are dispos'd in *Strata*, and have been call'd *Bezoars*; but these have been distinguish'd by the Names of the particular Animals from which they happen to be taken; such, for Instance, are the *Bezoar* of the Ape, and that of the *Cayman*. Some, taking the Word *Bezoar* for a general Name, signifying any Medicine against Poison, have applied it, without Distinction, to every Substance of that Nature: So that the Name *Bezoar* has been affix'd to chymical Preparations, such as the *Mineral* and *Jovial Bezoars*: With others, a Powder of the Heart and Liver of Vipers has been styl'd *Bezoar*. The Name *Bezoar*, or rather the Epithet *Bezoardic*, has also been bestowed upon some Powders, or artificial Stones, in which the *Bezoar* is an Ingredient; such as the *Countess of Kent's Powder*, and the *Goa Stone*.

Some People, observing that *Bezoar* was dispos'd in *Strata*, have given the same Name, and ascrib'd the same medicinal Qualities, to a Stone resembling it in the Conformation of its Parts, and which is found in several Parts of the Earth in *America*. *Bezoars* of this kind are to be found in *Italy*, in *Sicily*, and even in several Parts of *France*, but especially in *Languedoc*.

These are, in general, the several Substances known under the Name of *Bezoar*; but, strictly speaking, *Bezoar* is a Substance of a stony Nature, extruded from some Animal, compos'd of several *Strata* or Layers, like those of Onions, and which possesses a certain Quality, by means of which it resists Poisons. The two principal Species of this Medicine are, as we have already said, the *Oriental* and the *Occidental Bezoars*. We have not, as yet, arriv'd at an absolute Certainty what particular Animals produce these two different Species, because, 'tis possible, People may have said concerning both, what was only true of one of the Species: Only this much we know in general, that this Stone is form'd in the Stomach of a certain wild Goat, which browses upon aromatic Plants. If we may give Credit to *Tavernier*, there are several of these Stones to be found in one and the same Animal, the Truth of which, he says, we discover by the Touch. These Stones are of different Shapes and Sizes: Some of them are of the Form of a Kidney, or *French Bean*; others are round, oblong, and of an irregular

Figure. Each Stone of this kind is compos'd of several Laminæ, form'd of a greenish or olive-colour'd Substance, diversify'd with white Streaks, which run thro' the whole Body of the Stone. These Laminæ adhere so closely to one another, that, upon breaking the Stone, we may observe several Layers of different Thicknesses, and even sometimes of different Colours. There are also found Laminæ, which, upon breaking these Stones, disengage, and separate themselves very regularly from each other; which they also do when a considerable Degree of Heat is apply'd to them. The Substance which possesses the Middle or Centre of these *Bezoars*, is usually hard, gravelly, and pretty smooth. The *Bezoardic* Layers, which cover this Substance, are easily broken between the Teeth, to which they adhere like a gently glutinous Substance, and tinge the Saliva a little.

Upon burning some of these Layers, I found that they were easily inflammable, and contain'd a volatile Salt and an Oil. The Matter which remain'd after their being burn'd, resembled the *Caput Mortuum* which remains in the Retort after the Distillation of animal Substances. These Stones are smooth on their Surfaces, but sometimes, on certain Parts, are rough and unpolish'd, like *Slug-green*. They are pretty tender, and, if apply'd with a considerable Degree of Force to Paper, rubb'd over with Chalk, White-lead, or Lime, they wear away, and tinge the Paper, thus prepared, with a yellow, greenish, or olive Colour, leaving some Part of their Substance upon the Chalk, White-lead, or Lime. I steep'd two of these Stones in cold Liquor, the one in Water, the other in Spirit of Wine, for twelve Hours, without any apparent Change or Alteration being produced in them. I left the same Stone in the Water for some Days, during which Time there was so very small a Quantity of Matter separated from it, as only render'd the Water gently turbid; the Water and Spirit of Wine had nevertheless penetrated both the Stones.

Among the great Number of *Bezoar* Stones I have broken for the sake of Examination, I have found many, in the Middles of which, agreeably to the Accounts of some Authors, there were Straws, Hairs, Marassites, Flints, and gravelly Concretions, as much compacted, and as hard, as the Stones themselves. In some of them I have also found Tale, Wood, Stones almost resembling those of Cherries, Stones of Myrabalans, and Fragments of the Stones of other Fruits. In some I have also found a Sort of Cassia-nuts, and Kidney-beans, included in a Coat or Membrane, the external Surface of which was indurated by the Matter of which the *Bezoar* is form'd, and in which the proper Membrane was shivell'd up, and become dry. In others I have found the first Covering watted; and the entire Stones, upon being struck, sounded like *Eagle-stones*. I have endeavour'd to prick one of these Stones with a red-hot Needle, in order to discover whether it was genuine or not; but the Needle did not prick them, and only left a brownish Mark where it touch'd them; which Method some Authors have propos'd as the most effectual for distinguishing the good from the counterfeit, assuring us at the same time, that those in which the Kidney-beans were found, are counterfeited by the Inhabitants of the several Countries from which this Commodity is imported.

These Authors, therefore, advise us to make Choice of the *Bezoar* Stones which are of a moderate Bulk, of a brownish Colour, and which communicate a yellow Colour to Quicklime, a greenish one to Chalk, and which cannot be dissolv'd in Water. If prick'd with a hot Iron, no Bubbles ought to arise round the Iron, which is a Proof, that it is not adulterated with any Rosins. The Laminæ also must be true, and dispos'd in *Strata*. The best Species of these Stones are taken from Animals that feed on large Mountains, such as those of *Persia*. After all, it appears to me a hard Task to counterfeit *Bezoar*; and any one who has been in the least conversant in this Commodity, may by his Sight only, as well as by the other Marks I have laid down, discover the Imposture; for, if it was counterfeited with Plaster, or any other substance of a similar Nature, it would neither undergo a Change by means of Fire nor Water, nor convey its Colour to Lime, nor, in a word, would it be able to stand all the several Methods of Proof for distinguishing the genuine from the counterfeit.

Nor is it credible, that, in order to counterfeit it, People should be at the Pains to seek for all these different Materials, which serve as a Ground-work for the Laminæ, or Beds of which 'tis compos'd; since, without so much Ceremony, they have only Occasion to begin it upon a small Ball of the same Matter, which, in all Probability, is not very scarce.

I am of Opinion, that the Substances included in the *Bezoar* Stones discover to us the precise Manner in which they are form'd, as *Tavernier* observes, who says, that these Stones are form'd around the small Buds or Tops of the Branches of a certain Plant. These Buds of *Tavernier* may possibly be the same with the Kidney-beans mention'd by *Morant*, and which I myself have observed. These solid and indurated Bodies, remaining in the Stomachs of these Animals, irritate their Glands; and the thick Lymph which these Glands discharge, together

with the Menstruum of the Stomach, which is impregnated with the Juice of the aromatic Plants, upon which they feed, form those regular, smooth, and beautiful Layers, which Art would in vain attempt to imitate; and I have even observ'd, that whatever Substance was lodg'd in the Centre of these Stones, the Strata were so fine, and so well dispos'd, that the external Figures of the Stones bear a Resemblance to that of the Substance lodged within them.

If, for Example, a Piece of Straw be the Ground-work, the Stone form'd upon it will be long; if it is a Piece of Flint, the Stone will preserve the same Figure; and, if a Kidney-bean, we may observe externally the Radicle, and the Line which separates the two Lobes of the Bean. In short, from the Form and Weight of these Stones, we are enabled to judge effectually of the particular Substances on which they are form'd. Thus, as in a Commodity so precious as *Bezoar*, we are not allowed to break each Stone, we must therefore trust to the Touch and Sight, after having try'd our Experiments upon some of the most suspicious ones. By the Sight we are enabled at once to form a Judgment of the Colour, which ought to be neither too pale nor too deep. Secondly, we are to judge of it from the Fineness of the Grain, and the Texture being so smooth and close, that the several Laminæ are not easily separated from each other. We must also take care to choose those which are of a regular Figure; that, for Instance, of a Kidney, a Bird's-egg, or some other similar Form. By the Touch we may also judge of the Substance included in the *Bezoar*, since the Weight or Lightness will determine that Point very well. If, for Instance, the Stone is heavy, the Ground-work, or Substance on which it is form'd, will be a Portion of Flint, possessing the greater Part of the Stone. If, on the other hand, the Stone is light, it will either be hollow internally, or include only some light Substance, such as a Collection of Hairs, or some of the vegetable Substances I have already mentioned. The Stones which found upon being struck, probably have, for their Groundwork, some Fruit, which, either becoming dry, shrinks up into a smaller Bulk than it at first had, or else is putrefied, and reduc'd to a Powder which some Authors esteem very much.

I have observ'd also, that when the *Bezoar* Stones are of the Shape and Form of a Kidney, feel light, and yield a Sound, a Kidney-bean is ordinarily the Substance on which they are form'd. There are others of these Stones which are also light, of a round and somewhat flat Figure. These, upon Trial, I found contain'd a round and flat Fruit, almost of the Figure of a Cassia-nut. Besides, tho' these *Bezoars* should include hard Stones of Fruit, (Instances of which have been met with) or even Portions of Wood, yet still their Lightness renders them preferable, provided the *Bezoardic* Matter bears the other Proofs, to those form'd upon Flints, and which are much more heavy.

For answering its common Intentions in Physic, the Method of preparing *Bezoar* is, to reduce it to a fine Powder, whether with a View to be taken in Substance, or to serve as an Ingredient in some other Compositions; provided we remember to pulverize only the *Bezoardic* Part, and to separate all adventitious Substances, especially Flints, and other Things which have none of the Qualities of *Bezoar*, and which are lodg'd in them.

The Sentiments of People are strangely divided with regard to the Animals which produce the *Oriental* and *Occidental Bezoars*: But it appears, that the *Oriental Bezoar*, which is brought to us from *Egypt* and *Persia*, the *East-Indies* and *China*, is produc'd by a Species of wild Goat, which the *Persians* call *Pazan*, and which is larger than ordinary, swift as a Deer, and has Horns reclining on its Back; for which Reason *Linnaeus* calls it *Capricrva*, and which is thus distinguish'd:

Capra sive Gazella Bezoardica Orientalis, Offic. *Gazella Indica*, cornibus rectis longissimis nigris, prope Caput tantum annulatis, Raii Synop. A. 79. *Capricrva Orientalis*, è quâ *Lapis Bezoar Orientalis*, Schrod. 5. 277. *Caper sive Hircus Bezoarticus*, Aldrov. de Quad. Biful. 755. *Capra sive Hircus Bezoarticus vel potius Pazarticus*, Jons. de Quad. 56. *Hircus Bezoarticus*, Chault. Exer. 11. THE BEZOAR GOAT.

That Species of *Bezoar* which is imported from *America*, is produc'd by a Goat, which differs little or none at all from the former, except with regard to its Horns. It is thus distinguish'd:

Cervus minor Americanus Bezoarticus, Offic. *Capricrva Occidentalis*, Schrod. 5. 278. *Maxama seu Cervus*, Hern. 324. *Caguacu-etc*, Marcg. 235. *Caguacu-apara*, Ejusd. *Sive mas & samina*, Raii Synop. A. 90. Pif. (edit 1658) 98. THE LESSER AMERICAN DEER.

Pomet describes the *Oriental Bezoar* Goat thus, from *M. du Renou*: It is a very active Animal, says he, that skips from Rock to Rock, at his Ease, and is very fierce, so that when he is closely pursued, he sometimes kills the *Indian* Hunters. The Hoof, or Claws of his Feet, are divided neither more or less than the Goat's; the Legs are pretty thick, the Tail short and turn'd up; the Body hairy, as that of the He-goat, but shorter, and of an Ash-colour, inclining to Red, or rather of

the Colour of the Hind's Belly; the Head is shap'd like the Goat, and arm'd with two black Horns, jagged at the lower Part, and turn'd backwards.

The great Variety of Opinions advanc'd by different Authors, with regard to the Name and Shape of this Animal, induce me to believe, that there are several Species of Animals in which these Stones are found, and that each Author has describ'd the particular Species which he has had an Opportunity of seeing. This Reason may also account for the different Colours of *Bezoar*.

The *Occidental Bezoar* is easily known from its being of a paler Colour: It is sometimes of a Greyish-white; and is form'd on Substances of the same kind with the *Oriental*. Its Laminæ are also sometimes thicker and striated according to their Thickness.

The fossil *Bezoars* are Species of Stôties, form'd by Strata or Beds, and in Figure resemble the animal *Bezoar*. They are ordinarily of a grey-whitish Colour: Their Strata are pretty minute; they have no Smell; and are used in the same Disorders for which the other *Bezoars* are thought proper. *America* supplies us with large Quantities of these *Bezoars*, and they are also to be found in *Italy*, and several Parts of *France*. Mineral *Bezoar* is thus distinguish'd:

BEZOAR MINERALE, *Terra Sicula*; *Bezoardicum Minerale*, Mont. Ind. Exot. 14. *Bezoar Minerale*, Aldrov. Mus. Metall. 805. *Lapis Bezoar Minerale Siculus*, Bocc. Obs. Ed. Ital. 379. *Lapis Bezaban Siculus albus*, *Orientali fragilior*, Cup. Hort. Cath. Supp. 1. 246. *Lapis Bezoar fossilis*, Geoff. Prælect. 69. De Laet. de Lap. 114. *Belzuar Mineralis Siciliana*, Bocc. Mus. di Fisica 55. MINERAL BEZOAR, or SICILIAN EARTH.

There are some other Substances, which, from the Manner of their Production, are called *Bezoar*. Thus there are the

BEZOAR GERMANICUM. *German Bezoar*. See ÆGAGROPILA.

BEZOAR HYSTRICINUM. See HYSTRIX.

BEZOAR MICROCOSMI, is the human Calculus.

BEZOAR SIMIÆ. See SIMIA.

Those who have written upon *Bezoars*, and amongst others *Caspar Bauhine*, have comprehended under that Name a great many Substances which have not the least Affinity to *Bezoar*, which must undoubtedly introduce Disorder and Confusion into natural History. If then we were to range into a proper Order all the Substances which can come properly under the Denomination of *Bezoar*, I think we might very properly reduce them to five Classes.

The first of which should contain the true *Bezoars*, which are the *Oriental* and *Occidental*.

The second should comprehend all Stones extracted from Animals, which approach to the *Bezoar* in the Conformation of their Parts, or their Qualities; such as the *Bezoar* of the Ape, that of the Cayman, and even the various Species of Pearls and Crabs-eyes.

In the third Class should be ranked the several Species of fossil *Bezoars*.

In the fourth should be placed those Substances which are shaped like *Bezoar*, without having its Virtues; such as the Stones found in the human Bladder, Kidneys, and Gall-bladder; as also those that are found in the Gall-bladders of Oxen, or other Animals.

In the fifth and last Class should be ranged the *Ægagropila*, which are a Species of Balls of different Figures, and very light, formed by a Collection of Hairs and Fibres of Plants, which the Animals, in whose Stomachs they were lodg'd could not digest. These Fibres and Hairs are at last so interwoven with one another, as to form one Body, which resembles a Ball of Felt like that employed in making coarse Hats. Some of these are found covered with a very fine Crust of *Bezoar*. They are ordinarily found in the first Ventricle of all ruminating Animals, or in the Stomach of such as do not ruminate; such are the Stones found in the wild Porcupine, and other Balls of Hair found in Goats, Oxen, Cows, and other Animals. *Mem. de l'Acad. R.* 1710.

In a subsequent Memoir Mr. *Geoffroy*, continuing the Subject of *Bezoar*, proceeds thus:

I have already observ'd, that there was almost always some kind of Substance, round which the *bezoardic* Strata are form'd and dispos'd; and this Circumstance has to me appeared a Mark, that these Stones were not counterfeit'd, since any one that would attempt to counterfeit them, would not, in all Probability, be at the Pains of collecting so great a Variety of Materials as are generally found in those Substances, which are the Bases or Ground-works of different *Bezoar*-stones.

The fossil *Bezoar* is also form'd in the same manner. *Boccone* has in them observ'd Fruit stones of various Sorts; Flints, Gravel-stones, Wood, Metal, Coal, and other Substances. I examined some of those commonly called *Priapolites*, which are found in *Languedoc*; and I had one of this Kind given me by Mr. *Ben*, in the Heart of which there was a Piece of Rock-crystal.

Among

Among the several Substances found in the animal Bezoar-stones, I have observed one, which, to me, appeared very like the Cassia-nut, or a Tamarind-stone, though smaller: However, I have since found, that it might possibly be the Seed of a certain Pod, which I had not then seen, and which resembles the Seed of the Pod produced by the true *Egyptian* Acacia, which grows in *Egypt*, in *Arabia*, and in several other Places. This Pod is imported to us from *Senegal*, and is three Inches or three Inches and an half long, and nine or ten Lines in Circumference. It is composed of two Membranes, one external, and another internal. The external Membrane is very tender, of a brownish Colour, and adheres to the internal one, which is cartilaginous, and very slender. The Substance which unites them is of a gummy Nature, of a yellowish transparent Colour, melts in the Mouth, and is of a very bitter Taste. In the longest of these Pods I have found eight Seeds, separated from each other by a sort of Coat, which unites the two Sides of the internal Membrane. Every Cavity of these Pods contains a flat Seed, resembling that of a Lupin, sometimes exactly circular, and sometimes a little compressed by the Coats joining the two Membranes of the Pods, which are more contracted in the Middle than towards the Extremities; so that the Seeds in the Middle of the Pod are a little compressed, and those at its Extremities perfectly round.

What made me suspect, that these Seeds were the same I had observed in the Hearts of the Bezoar, which are round, and a little flat, is, that in both I have found the same Marks, and among others a whitish circular Line drawn on every Surface of each Seed, resembling that found on the Substance included in the Bezoar. I put some of these Seeds into Water, where they swell'd almost in the same manner they were found to do in the Stomach of the Animal, when they were beginning to have the bezoardic Matter form'd upon them. The Tincture I extracted from these Seeds was of a red Colour, a very bitter Taste, and, upon the Addition of a little Vitriol, became black. In the Countries where these Pods and Seeds are produced, the Inhabitants use them for tanning Leather. From a Decoction of them in Water, there is a Juice extracted, which, when inspissated, is imported to us under the Name of the Juice of *Acacia*. Some also assert, that what we call the Gum Arabic, or Gum *Senegal*, flows from this Tree. Is there then any Probability, that the Persons who are said to counterfeit the Bezoar, should be at the Pains, among other things, to seek for the Fruit of the *Acacia* as the Stamina or Ground-works of their Compositions? Or is it not more probable, that this Fruit, and some others used for the Pasturage of Cattle, by their astringent Qualities, produce an Inspissation of the Juices in the Stomachs of those Animals, which feed most commonly on them, and that in Consequence of this Inspissation the Bezoar-stones are form'd?

This then is the Manner in which these Stones are form'd in the Stomachs of the several Animals which produce them. Several of them may be found in the Stomach of one and the same Animal; and *Tavernier* tells us expressly, that six of these Goats, which he received as a Present, had among them all seventeen Bezoars, which might have been felt and number'd by touching their Stomachs externally; and that this Circumstance augmented the Price of the Animals, in proportion to the Number of Stones discover'd. This Account agrees intirely with that given by *Clusius* of the Animal which produces the Occidental Bezoar. He says, that a Friend of his at *Peru*, who first discover'd the Occidental Bezoar, having a Mind to know how these Stones were formed in the Bodies of those Animals, dissected one of them, in whose Stomach he found a kind of Cystis, in which these Stones were ranged and disposed in the same manner with the Buttons of a Coat.

This Account given by these two Authors is directly opposite to that given by *Pomet*, who asserts, that there is only one Bezoar found in the Stomach of each Animal. He assures us, at the same time, that he would not dare to contradict the Authors who have written on this Subject, if he had not had in his Custody a Piece sufficient to justify his Opinion. It will not be improper to inquire a little more minutely into this Fact, since nobody, so far as I know, has as yet animadverted publicly on this Error of *Pomet*'s, with regard to his pretended Coat of the animal Bezoar, which he asserts to be one of the greatest Curiosities the Virtuosi of *France* have seen for a long time.

In that Part of his Treatise of Drugs which relates to Animals, he gives the following Account of it.

"This Coat," says he, "is as large as a Goose's Egg, covered over externally with a rough, short, and yellowish-coloured Hair. Upon cutting it, the first thing that occurs, is a thin brown Shell, which serves as a Cover to another white one, as hard as a Bone, in which the Stone called Bezoar is contained."

Now this extraordinary Coat in which the Bezoar is wrapt up, and which he pretends to have discover'd, is by no means any Part of the Animal which produces the Bezoar, but an exotic Fruit, in which either *Pomet* himself, or some wanton Impostor, by whom he has allowed himself to be deceiv'd, has dexterously fitted the Bezoar. 'Tis only a Year since I detected

this Piece of Fraud; for when I was examining this Curiosity of the late Mr. *Pomet*'s, along with Mr. *Vaillant*, and Mr. *De Jussieu*, we perceived that this pretended Coat could not possibly be a Part of any Animal, but rather some little known Fruit; which Conjecture was afterwards confirmed by Mr. *Vaillant*, who, happening to have some Fruit of the same Kind, found no Difficulty to make of their Coats Bezoars exactly like that so much valued by *Pomet*. This Fruit is produced by a sort of Palm-tree, described by *John Bauhine* under the Name of *Palma Cuciofera*. This Fruit is also described by *Theophrastus*, and the Tree itself grows in *Egypt*, *Nubia*, and *Ethiopia*. *Cordus* calls it the *Nux Indica minor*, and has given the same Description of it which *Pomet* has given of the Coat of the Bezoar. *Pomet* has omitted only one Particularity of this Description, which is the Skin which covers the Whole of the Fruit, and is of a yellow tawny Colour. The Fruit itself has a Pedicle divided into six Parts, three of which are large, and three small. These Circumstances were sufficient to deceive Mr. *Pomet*, and others with him; but a careful Detection of Frauds of this Kind must contribute considerably to the Perfection of natural History. *Memoires de l'Acad. Royale de Sciences*, A. 1712.

Mr. *Geoffroy* the younger exhibited to the Academy a Bezoar of a very singular Kind. It is a Stone irregularly round, three Inches and three Lines in its greatest Length, and two Inches and an half where it is shortest. It weighs only five Ounces, and is of a greenish-yellow Colour. It was found in the Gall-bladder of a Land-tortoise in the Island of *Bombon*. Mr. *De Jussieu* has one of the same Sort, but more flat, an Inch thick, and as large as the Palm of a Person's Hand. They are both disposed in Strata like all other Bezoars. From this we see, that stony Concretions may be formed in all the Cavities of the Bodies of every Species of Animals. *Hist. de l'Acad. Roy. de Scienc.*

Schroder says, that Bezoars are alexipharmic, and Promoters of Sweat; that they are good in Epilepsies, Palpitations of the Heart, Jaundice, Dysenteries, Stone, and Obstructions of the Menfes; as also that they cure Melancholy, and forward Delivery; and in these important Intentions he assigns the Dose from three Grains to twelve. But we have no Instances from Experience to support any such Practice. They have neither Smell nor Taste; and upon taking into the Stomach, give no Sensation, nor produce the least perceivable Effect, which is Ground enough to suspect them good for nothing; although our Physicians prescribe them in much larger Doses than what *Schroder* mentions, and others have ventur'd half a Dram or a Dram at a time. The Shops use it only in the *Pulvis à Chelis compositus*, commonly called Gascoign's Powder, which, tho' it is a dear Medicine, seems to be of no Virtue as an Alexipharmic; yet as it has often been join'd in Prescription with some Alexipharmics of Efficacy, it has the Credit, amongst the Ignorant, of doing what it never had any Share in. *Quincy*.

Many Circumstances contribute to render the medicinal Virtues of Bezoar precarious, and not easy to be determin'd; as the Uncertainty of procuring that which is genuine, it being much adulterated, as is said, even in the *Indies*, not to mention the large Quantities that are made in *Europe* in Imitation of the true. Again, the excessive Price it generally bears, makes it inconvenient to exhibit it in a great Number of Cases, and that in sufficient Quantities, and those long enough continu'd, to determine, whether the Virtues attributed to it are real or imaginary; and, without this Test, it is not possible to reason accurately and conclusively with respect to the Efficacy of any one Simple, tho' the Manner of its Production, and the Analysis, are both taken into Consideration; neither does the Taste give us any surer Information, notwithstanding the above-quoted Remark of *Quincy*.

As to my own private Opinion, it is of no great Importance in the Case before us, because I have very seldom directed it, and consequently am not a Judge of its real Effect: But I am informed, from Physicians who have industriously attempted to make the proper Experiments, that it has no sort of medicinal Virtues, that they could perceive, which might give it the Preference to the Tefaceous Powders. I cannot, however, forbear thinking, that if we had the genuine Bezoar Stone, we should find it endow'd with greater medicinal Virtues, than at present we have any Reason to believe it possessed of.

That Species of Bezoar call'd by the *Dutch* *Pedro de Porco*, and by the *Portuguese*, who first imported it into *Europe*, *Pedro de Vassar*, is found in the Gall-bladders of certain wild Boars in the *Indies*. It is not much larger than a Filbert of a moderate Size, which it resembles pretty much in Shape, tho' 'tis more irregular. It is not always of one and the same Colour, tho' generally it approaches to that of *Toulon* Soap, which is a Greenish-white. Its Surface is as it were polish'd, and smooth to the Touch.

When any of these Bezoars are imported to *Amsterdam*, (the Number of which brought home in the richest loaded *East-India* Ships rarely exceeds five or six) they are purchased at three or four hundred Livres each, and sometimes more; not by the Merchants, with a View to profit, but by the more opulent Burghers,

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Burghers, either for Presents to Persons of Distinction, or in order to be preserv'd as a Treasure in their Families, and handed down by way of an Entail to their Posterity.

'Tis incredible what surprising Virtues the *Indians* ascribe to this *Bezoar*, which is by them called *Mastica de Soho*. The Inhabitants of the Kingdom of *Malaca*, where 'tis most commonly found, also esteem it more than the Oriental *Bezoar*, not so much because they believe it the best Preservative in the World against all sorts of Poisons, as because it is a sovereign Cure for the *Mordaxi*, a Species of Disease to which they are subject, and which in that Part of *Asia* is no less dangerous and fatal than the Plague is in *Egypt*.

The *Indians* also affirm, that this Species of *Bezoar* is an excellent Remedy in all malignant Fevers, the Small-pox, and most Disorders under which Women not with Child may happen to labour. Experience has also convinc'd them, that it causes Abortion when used by Women with Child.

The Method of using this *Bezoar* is to infuse it in a Glass of Water or Wine, till it has communicated a slight, though not a disagreeable Bitterness to the Liquor, which is to be drank in a Morning fasting, and on all other Occasions, when pressing Circumstances call for it.

In order to facilitate the Infusion, and preserve so precious a Stone, most People who have it, set it in a round Box of Gold perforated in several Parts, to which a small Chain of the same Metal is fix'd, in order to suspend it in the Liquor when they use it.

The *Bezoars* taken from the Porcupines and Apes do not differ from those taken from the wild Boar, except in this Circumstance, that they come from different Animals; unless with Mr. *Tavernier* we assert, that these two Stones, which he calls *Malaca* Stones, are not found in the Gall-bladder of the Porcupine and Ape, but in the Heads of both these Animals; and that they are *Bezoars* so much esteemed by the Inhabitants of *Malaca*, that they never allow any of them to be carried out of their Territories, except such as they intend for Presents to Ambassadors, or some of the more potent *Indian* Kings.

Some assure us, that the *Bezoar* of *Siam*, so much esteemed for its excellent Qualities, is a Stone taken from the Ape; and that it is found in *Siam* as well as in *Malaca*, in which last Country alone Travellers affirm'd it to be found, till Mr. *Chau-mont* went to *Siam* in 1686. in Quality of Ambassador from the Court of *France*.

There are several compound Substances, which are call'd *Bezoars*, or *Bezoartics*, the principal of which are the following.

BEZOAR ANIMALE is thus prepared.

Take of Hartshorn calcin'd to its greatest Whiteness, and reduced to Powder, four Ounces: Levigate it on a Marble till it become very fine, pouring to it, Drop by Drop, a Quantity of the Spirit of Vitriol, sufficient to form a Paste, out of which form small Balls, which are to be dry'd immediately.

The Liver and Heart of Vipers pulveris'd is called also ANIMAL BEZOAR.

This Medicine is an Alexipharmic, a Sudorific, and a Destroyer of Worms. It stops Fluxes, quenches Thirst, and is an excellent Medicine for Children.

BEZOARTICUM JOVIALE is thus prepared.

Take of the Regulus of Antimony fus'd in a Crucible, three Ounces; to which add two Ounces of *English* Tin fus'd in the same manner, that a Regulus may again be produced; then levigate the Whole, and mix with it six Ounces of sublimate Mercury, and distil with a Retort. Fix the Butter distil'd from it, with Spirit of Nitre, by three Distillations. Then calcine; and when ignited, extinguish it in Spirit of Wine, and dry it. Thus a greyish Powder is produced.

This Medicine is a strong Diaphoretic, and is of singular Efficacy in Disorders of the Womb, and a great many other Distempers incident to Women; as also in Fevers, the Plague, and Scurvy. Its Dose is from three to five Grains.

BEZOARTICUM LUNARE

Is prepared of Silver dissolved in Spirit of Nitre, and Butter of Antimony, by proceeding in the same manner as in the Preparation of the *Bezoar Joviale*.

This Medicine is a Specific in Epilepsies, Convulsions, Megrimus, and Apoplexies. It is Anodyne, Sudorific, and of singular Efficacy in curing the Erysipelas. Its Dose is from six to twelve Grains.

BEZOARTICUM MARTIALE

Is prepared of the Crocus of *Mars* dissolved with Butter of Antimony, fixing it as above directed in the *Bezoar Joviale*: Or,

B E Z

It is made by dissolving one Ounce of the Filings of Steel in a sufficient Quantity of *Aqua Regia*, pouring to it, by little and little, eight Ounces of Butter of Antimony, and proceeding with Spirit of Nitre.

This Medicine powerfully stops hepatic and other Fluxes, and strengthens the Viscera. Its Dose is half a Scruple.

BEZOARTICUM MINERALE: *Bezoar Mineral*.

Take of the Butter of Antimony, three Ounces; drop upon it slowly as much Spirit of Nitre; draw that off again in a Sand-heat; which pour back again, with the Addition of another Ounce of the same; which draw again, and repeat that Operation three or four times. Let the remaining Matter be powdered, and calcined for an Hour in a Crucible; then edulcorate by washing, and burn upon it three or four times Spirit of Wine.

This seems to have been originally the Contrivance of *Crolius*; tho' *Quercetanus*, *Sennertus*, *Hartman*, and many other practical Writers, give several Processes for its Preparation; as doth also *Schroder* give one not much different from this. It hath been much controverted by some, whether this is a mercurial or an antimonial Medicine; but it is not of Consequence enough to require any Notice of the several Opinions thereupon. This Medicine is however of Efficacy and Use enough to tempt some Chymists, and such-like Artificers, who keep Medicine Warehouses, to sophisticate it; for to make it genuine will cost double (besides the Trouble and Danger of noxious Steams) of what those Impostors frequently sell it for. Their common Adulteration is with half or two Thirds of the *Flores Salis Ammoniaci*.

The Fumes of the first mixing are very noxious, and therefore to be carefully avoided. Its Operation is by Sweat, though it will also sometimes purge. It is much more efficacious than the Antimonium Diaphoreticum, and it will eradicate even Leprosies, and the most obstinate Cases of that Kind, if rightly managed. Some account it a Resister of Poisons, and commend it in pestilential Distempers. Its Dose is from ten Grains to half a Dram. Some calcine it in a Crucible, after it is taken out of the Retort. Others think it better to let that Part of the Spirit of Nitre it holds, remain with it; but its Operation is certainly milder for such Management.

Lute not on the Receiver, till the Violence of the Fumes are over, lest when the Fire augments its Motion, it break the Retort and Receiver. Do not exceed the third Degree of Fire, nor let it stand long after the Spirit of Nitre is drawn off, to prevent discolouring the Medicine. The Spirit of Nitro being now impregnated with common Salt which was in the Butyrum, is become an *Aqua Regia*, and will dissolve Gold, and is called *Spiritus Nitri Bezoarticus*. Quincy.

BEZOARTICUM MERCURIALE.

This is made by extracting a Tincture from the Glass made with *Mercurius Vita*, with Butter of Antimony, and fixing it with Spirit of Nitre.

It is said to be an excellent Medicine in Venereal Disorders.

BEZOARTICUM SATURNI.

This is prepared by extracting a Tincture from the Glass of Lead, (which may be obtained from Red-lead and Flints) with unrectified Butter of Antimony, and fixing it according to Art with Spirit of Nitre.

This Medicine is Anti-hysteric, and of great Service in Disorders of the Spleen. Its Dose is six Grains.

BEZOARTICUM SOLARE

Is prepar'd of Plates of Gold dissolv'd in *Spiritus Nitri Bezoarticus*, by pouring this Solution by little and little upon Butter of Antimony, and proceeding as above.

This Medicine is an excellent Sudorific; and of Use in the *Lues Venerea*, the Plague, the Gout, the Dropsy, Fevers, and Obstructions of the Spleen. Its Dose is from three to eight Grains.

BEZOARTICUM VENERIS

Is prepar'd, by extracting the Tincture from the Filings of Copper, with rectified Butter of Antimony, and fixing it according to Art, with Spirit of Nitre.

This Medicine is, by some, exhibited in Leprosies and Dis-eases of the Head and Brain. Its Dose is six Grains. External-ly it is of Use in old Ulcers, Fistulas, and Impetigos, if mix'd with some proper Ointment. *Pharmacop. Batan.*

SPIRI-

SPIRITUS NITRI BEZOARTICUS is made by distilling Spirit of Nitre and Butter of Antimony together, in a Retort. See **BEZOARDICUM MINERALE**.

BEZOARTICUM. Bezoartic, that is, possessed of the Virtues of *Bezoar*. *Alexipharmic*.

BHACTA. *Johnsen* explains this, *Terra Rubra*.

BIA, *Bia*. Force, Violence. Hence *Bia*, violently, forcibly. *μῆτις* *Bia* sometimes imports, scarcely, not without Difficulty. *Galen*.

BIARGHETNUSIM. Cerufs. *Rulandus*.

BIBINELLA, or **BIPENULLA**. The same as *Pimpernella*, which see. *Blancard*. *Ray* says, it is the *Plantago angustifolia serrata* of *Clusius* and *Parkinson*.

BIBI'ORIUS MUSCULUS. The Adductor Oculi is sometimes called by this Name.

BICAUDALIS MUSCULUS. The *Triceps Auris* has sometimes been thus called; and also *Tricaudalis*, and *Intricatus*. *Castellus*.

BICEPS. The Name of several Muscles, one of which is called,

Biceps internus Humeri, to distinguish it from the *Biceps externus*, otherwise called *Gemellus*. See **GEMELLUS**. It is more frequently called simply *Biceps Humeri*, without the Epithet of *internus*.

The *Biceps Humeri* hath two Heads or Beginnings: The first or outmost arises with a long round Tendon, from the upper Part of the Brink of the Acetabulum Scapulae, and runs under the Ligament of the Articulation, in a Sulcus or Channel, on the Head of the Shoulder Bone, wherein it is inclosed by a proper Ligament. In its Descent it begins to grow fleshy, as it marches under the Termination of the Pectoral Muscle, where dilating itself into a large fleshy Body, it joins with its other Head or Beginning. The latter arises with a somewhat broad, flat, and long Tendon, at the Extremity of the Processus Coracoideus Scapulae; in its Descent it strictly adheres to the Coracobrachialis (wherefore some Authors, not rightly describing that Muscle amongst those of the Arm, have mistaken it for a fleshy Beginning of this). But then parting from it, both these Heads compose a large fleshy Belly, which becoming tendinous, near the Cubit, is commonly said to be inserted by a strong, round Tendon, to the Tubercle at the upper Head of the Radius. But we have observed this Tendon to be double, the external of which, being thin, passes obliquely over the *Musculus Pronator Radii Teres*, and, Membrane-like, expanding itself, joins with the *Membrana Communis Musculorum*, which embraces all the external Muscles of the Carpus and Fingers.

When this Muscle acts, the Cubit is bended.

The double tendinous Termination of this Muscle (tho' not taken Notice of by any Author that we know) is very evident, and was observed first by us, some few Years since, in dissecting these Muscles, in Company with our very good Friend, that most indefatigable and curious Botanist Mr. Samuel Dodsley. It appears immediately under the Skin, and Membrana Adiposa of the Cubit.

As for the Use of this external Tendon, which we call *Fascia Tendinosa*, it seems designed, not only for the more advantageous Elevation, or Bending of the Cubit, which it more easily moves, by how much the more it recedes from the Centre of its Motion or Fulcrum, at the lower Part of the Arm-bone, and approaching to its other Extreme; but likewise strictly including all the external Muscles, whether belonging to the Radius, Carpus, or Fingers, it thereby corroborates them in performing those strenuous Actions they are necessarily employed in. This latter use was first suggested to us, by observing those artificial Bandages made of Leather, which some laborious Mechanics make use of, by adapting them to the belly'd Part of the Muscles of the Cubit, amongst which Turners, and especially those that use the Rasp in making Frames for Cane Chairs, (as they are commonly called) like a double Screw, are frequently obliged to this Artifice.

In Phlebotomy, the Ductus of these external tendinous Fibres ought to be respected, by directing the Lancet according to their Length, to avoid too great a Division of them, which is frequently the Occasion of those ill Symptoms that remain after that so commonly practised Operation by bold Blood-letters.

An extraordinary Case relating to this Muscle once happened in our Practice. A Woman, three Days before she consulted us, had (as she suspected) dislocated her Shoulder Bone, by wringing of Linen Cloths after Washing, (which is commonly done to express the Water) adding, that in straining her Arm in the Action, she sensibly felt something (as she thought) slip out of its Place on her Shoulder. After examining the Part, we were well satisfied, that there was no Dislocation: But observing a Depressure on the external Part of the *Deltoides* Muscle, and finding the two inferior Tendons of this Biceps rigid, and the Cubit thereby denied its due Extension, we suspected that the external tendinous Beginning (before taken Notice of) was slipped out of its Channel in the

Os Humeri; but finding the Part at that time somewhat inflamed, she having not long before made use of it, we advised her to an emollient Application, and to give it Rest till the next Morning; at which time we found our Conjecture true, and, by turning the whole Arm to and fro, it readily slipped into its Place, she recovering the Use of the Part immediately.

BICEPS FEMORIS.

The *Biceps Femoris* has two Heads, the superior and the longest of which arises with a round Tendon from the Protuberance of the Ischium, in its Descent becomes large and fleshy, and, in above half its Progress, lessens itself again, where it is joined with its other Head, having a broad, partly tendinous, and partly fleshy Beginning from the Linea Aspera of the Os Femoris, immediately below the Termination of the *Gluteus Maximus*; it being thus united, grows tendinous, as it marches in a Channel on the external Appendix of the Os Femoris, becoming perfectly tendinous at its Implantation into the superior Epiphysis of the Fibula.

Besides the Office commonly assigned to this Muscle in bending the Tibia, together with the *Sartorius* and *Membranosus*, it is likewise employed in turning the Leg together with the Foot and Toes outwards, when we sit with the Knees bended. *Cowper's Myotomia Reformatæ*.

BICHICILLÆ. An Epithet of certain Pectoral, or rather Treches, describ'd by *Rhazes*, consisting of the Juice of Liquorice, Sugar, Starch, Gum Tragacanth, and blanch'd Almonds. *Castellus*.

BICONGIUS. Two Gallons. It contains twelve *Sextarii*. *Castellus*.

BICORNE OS. A Name for the Os Hyoides. See **HYOIDES**.

BICORNIS MUSCULUS. A Name for the *Extensor Carpi Radialis*.

BICUCULLATA *Canadense radice tuberosa squamata*. This is a Name given by Mr. *Marchant* to the *Fumaria tuberosa hispida Cornuti*, of which *Marchant* makes a new Genus of Plants, because it differs from the other *Fumaria*, principally with respect to the Structure of the Flower. *Mem. de l'Acad. des R. S. 1733*.

BIDENS, Offic. *Bidens*, *Verbascina*, Mont. 38. *Bidens, foliis tripartito diviso*, Town. Inst. 462. Elem. Bot. 367. Herb. Par. 60. Boerh. Ind. A. 122. Buxb. 39. *Verbascina*, Dill. Cat. 166. *Verbascina sive Cannabina aquatica, flore minus pulchro, latior ac magis frequens*, J. B. 2. 1073. *Cannabina aquatica, folio tripartito diviso*, C. B. 321. *Eupatorium aquaticum famina*, Ger. Emac. 711. Raii Hist. 1. 360. Synop. 93. *Eupatorium aquaticum altum*, Park. 596. *Chrysanthemum Cannabinum Bidens, folio quinquepartito, sive vulgare*, Hist. Oxon. 3. 17. *Chrysanthemum aquaticum, folio tripartito diviso*, Herni. Flor. 2. 47. *Ceratophyllum vulgare tripteris & pentapteris folio*, Aët. Reg. Par. A. 1725. p. 327. **WATERHEMP AGRIMONY**. It grows in watery Places, and flowers in August. The Herb is in Use. It is hepatic and vulnerary. *Dale*.

BIFIDUS. Forked. *Spina Bifida* is a Name apply'd in the *Atta Eruditorum*, to certain Tumors at the Spinal Processes of the Vertebrae of the Back, in new-born Children. *Castellus*.

BIFOLIUM, Offic. *Bifolium sylvestre vulgare*. **ORDINARY WOOD BLOOM**, or **TWAYBLADE**. Park. Theat. 504. *Bifolium majus vulgare*, Hist. Oxon. 3. 489. *Bifolium majus, seu Ophris major quibusdam*, J. B. 3. 533. Raii Hist. 2. 1232. Synop. 3. 385. *Bifolium vulgare sylvestre, sive Ophris*, Mer. Pin. 15. *Ophris*, Chab. 506. Merc. Bot. 1. 54. Phyt. Brit. 82. *Ophris vicia*, C. B. Pin. 87. Town. Inst. 437. Elem. Bot. 346. Boerh. Ind. A. 2. 153. Ger. 326. Emac. 403. Buxb. 239. Dill. Cat. Gill. 75. *Ophris sive Ophris*, Rupp. Flor. Jen. 238. *Orchis bifolia, herbacea flore, major*, Herni. Cat. Hort. Lond. Bat. 461. **TWAYBLADE**.

This Herb has a slender Root, with many Fibres; from which springs a round Stalk a Foot high, or somewhat more, single, and not branched; about the middle of which grow two large oval Leaves, full of Nerves, somewhat pointed, and in Shape like the broad Plantain, on very short Foot-stalks. The Flowers grow in Spikes at the Top, like an Orchis, of a dull-green Colour, having no Spurs or Heels, and of a roundish Figure. It grows in Woods and Thickets, and in moist Meadows, particularly in *Battersea* Meadow, near the *Thames*, and flowers in June.

Twayblade is assurgent and agglutinating, good to consolidate Ruptures, and heal Wounds, tho' it is but seldom used. *Miller's Bot. Offic.*

BIFURCATUS. The same as *Bifidus*, forked.

BIGNONIA.

Mr. *Journefort* called this Plant *Bignonia*, in Memory of the Abbe *Bignon*, Librarian to *Levis XIV.* King of France, he being a great Encourager of Learning. The Trumpet Flower, or Scarlet Jessamine.

B I L

The Characters are ;

It hath a tubulous Flower, consisting of one Leaf, which opens at the Top like two Lips : These Flowers are succeeded by Pods, which are divided into two Cells, and contain several wing'd Seeds.

There are eleven Species of this Plant.

I don't know of any Medicinal Virtues attributed to it. *Miller's Dictionary.*

BIHAL.

This is the *American* Name of a Plant.

The Characters are ;

It hath a tubulous Flower, consisting of one Leaf, shaped almost like a Lily, and cut into two Parts ; the Pointal and Stamina are included in two Leaves. The Pointal afterwards becomes a fleshy three corner'd Fruit, containing three hard rough Seeds. To these Notes should be added, many Flowers contained in a common Covering.

There are two Species of this Plant.

I don't know of any Medicinal Virtues attributed to it. *Miller's Dictionary.*

BILADEN. Steel, or rather Iron; for Steel in Medicine signifies Iron. *Rulandus.*

BILIMBI. The Name of a small Tree about eight or ten Foot high, call'd by *Bontius* *Billing-bing*, and by *European* Botanists *Malus Indica*, *fructu pentagono*.

It is commonly cultivated in Gardens in *Malabar*, and bears Flowers and Fruit all the Year round, being fruitful from the first Year of its planting to the fifteenth, and longer.

The Juice of the Root, drank, allays a feverish Heat. A Cataplasm is made of the bruised Leaves, with an Infusion of Rice, which powerfully mollifies and resolves all Sorts of Tumors. The Leaves, boiled or macerated in an Infusion of Rice, make an excellent vulnerary Decoction. The Juice expressed from the Fruit cures Itchings, Impetigo, Pfora, and other like cutaneous Affections, if Linen Cloths be wetted therein, and now-and-then applied. The same drank with burnt Arrack cures the Gripes, and stops a Diarrhœa. Of the bruised Leaves, with the Juice of the Flowers of the Palm-tree, is prepared a Cataplasm, which cures all Kinds of Inflammations. Of the dry'd Fruits, and the bruised Leaves of Betel, they make a Powder, which drank in burnt Arrack promotes Delivery, and expels the dead Fœtus and Secundines.

The ripe Fruits are eaten for their Deliciousness, but the unripe are preserved with Sugar, or in Pickle and Vinegar.

Bontius also tells us, that he used to make a Syrup of the Juice thereof, which he prescrib'd in a hot Distemperature of the Liver, and an inflammatory State of the Blood. We make use of the same, he says, in a Decoction with Rice undecorticated, which we call *Pada*, as an excellent Medicine in burning and continual Fevers; for it very much contributes to the quenching of Thirst, and checks the Effervescence of the Bile.

There is another Species of this Tree, which is called *Nebipouli*, or *Bilimbi altera minor*, H. M.

Of this there are two Kinds, or rather Sexes, one of which, tho' it flowers, never bears any Fruit, and is called by the peculiar Name of *Ala-pouli*.

It grows every-where in *Malabar*, and in many other Parts.

The Root of this Tree bruised with the Seeds of Mustard and Cumin, and taken, excites Vomiting, and loosens the Belly; but if it be used with the Fruit *Yemara-tonga*, it restrains an immoderate Flux of the Belly, and cures a Dyspnœa. A Decoction of the Leaves in common Water excites Sweat, and expels the Small-pox. The same with *Malabarian* Saffron, which the Natives call *Manja Cacas*, makes a Bath, which is of great Efficacy in all Pains of the Limbs. The Fruit is highly refrigerant, and therefore extremely proper to allay a violent Thirst in a continual Fever. *Raii Hist. Plant.*

BILIS. The Bile or Gall.

Few Subjects have been more copiously treated of than the Bile, both by the Antient and Modern Writers in Medicine; and it must be confessed, that very few so much deserve it, or are of equal Importance. I shall therefore endeavour to give a general Idea of the Notions entertain'd by the Antients, concerning the different Species of Bile; more with a View of rendering their Writings easily intelligible, than of explaining the true Nature of this Fluid, the Generation and Uses of which must be learned from the Moderns, who have with greater Accuracy, and more intelligibly, treated this Subject.

Bilis, *χολή*, in *Hippocrates*, when put absolutely, and without an Epithet, signifies pale or yellow Bile, as *Galen* in many Places assures us; as in his *Com. 3.* on the Book *De Rat. Fitt. in Morb. acut.* *ἐθίσι γὰρ τοῖς ἰατροῖς χολὴν μὲν ἀπλῶς ὀνομάζουσιν τὴν ἀχρὰν τε καὶ ξανθὴν, τὴν μελαιναν δὲ χολὴν ὅλον τὸ λεγόμενον ἀπλῶς χολὴν.* "Physicians usually call pale or yellow Bile, simply Bile; but black Bile they express in so many Words, not simply, or by the Name of Bile only." And *Com. 4.* *ὅτι δ' ὅταν*, &c. "We said before, that Bile sim-

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"ply said, signifies bitter Bile." And in his Comment on the thirty-second Aphorism of the Seventh Book, *τὸ δὲ χολῶδες*, &c. "Bile is always the Cause of acute Diseases; for, as we said, by this Name the antient Physicians usually called a bitter bilious Humour, and they never express the melancholy Humour without an Epithet, not calling it simply Bile, as they do yellow Bile, but black Bile." Again in his first Comment on the Book *de Natura Humana*, *ὁ μόνον ἰατρῶν ἔθος*, &c. "It is customary not only for Physicians, but with all the Greeks, to say Bile, without any Addition, when they intend to signify pale, or yellow Bile, for both these Epithets are apply'd to one kind of Humour, differing in respect of Moisture and Dryness; but all the other Biles are expressed with some Addition, as by *æruiginous*, *black*, *red*, *porraceous*." And in another Passage of the same Comment, he says, it was usual for the Greeks to call yellow Bile, simply Bile, but never intended black Bile without mentioning its Epithet. The same Author, in his Book of preternatural Tumors, says, "A Custom has obtained, I know not how, among us Physicians, when we say Bile simply, or the bilious Humour, we are understood to mean the pale or bitter Bile, not the acid and black Sort, which we never mention without an Addition, connecting it with its Colour." Once more, and very fully, in his fifth Comment on the sixth of the Epidemics, where he enumerates the various Species of Bile, *χλωρὰς δὲν χλωρὰς εἰρηκεν*, &c. "He (*Hippocrates*) says pale Tongues, according to the vulgar Way of speaking, as when we say, that we saw some look pale, whose Colour has been alter'd to a more bilious Hue, or to that of pale Bile. For this we express simply by the Term Bile, not as we do the other Kinds, with an Addition of Epithets, as *black*, *æruiginous*, *red*, *yellow*, or *vitelline*. Now the yellow Bile is next to the pale, and almost of the same Kind; and the pale Bile we commonly express without its Epithet, as when we say, the Man vomited Bile; but the yellow Bile is but seldom expressed absolutely, for we immediately subjoin its Epithet, saying, the Man vomited yellow Bile, or pure Bile. But neither Physician, nor any of the Vulgar, did ever express æruiginous or black Bile without an Addition; nor yet the glassine, (bluish) porraceous, or vitelline. These Names are given by some Physicians to the different sorts of Bile, and are taken from their Colours; so also they call by the Name of red Bile, the Serum of the Blood; but the vitelline is the yellow Bile incrassated, as the pale Bile is the same diluted with a watry Substance." This pale Bile, *Hippocrates* in the Place above refer'd to, which is *Aph. 13. Sect. 5. lib. 6. Epid.* says, "Is generated of Fat," *τὸ δὲ χολῶδες ἐκ πῖτος*.

The Terms *χολῶδες*, and *χολῶδη* also, in *Hippocrates*, simply used imply pale or yellow Bile, as *Galen* writes in his fourth Comment on the sixth Book of the Epidemics, *λέλεκται δ' ἡδὲ πλελλάκις*, &c. "We have often observed, that when he (*Hippocrates*) says simply bilious (*χολῶδη*), he intends pale or yellow Bile, since to other kinds of Bile he attributes their several Colours; thus we find in him, that æruiginous, and reddish, and black, and dark-colour'd Bile are vomited." Again, *Com. 2. in lib. 3. Epid.* "Tis probable, says he, that she voided pure bilious Matter (*χολῶδη*), that is, either yellow or red; for it is usual with him, as well as other Physicians, to express the black and æruiginous, with an Addition of their proper Colour. We also commonly say, such a one voided bilious Matter, meaning yellow Bile; for we do not call æruiginous, or black Excrements, or those of any other Colour simply bilious, but with an Addition of their proper Colour. And this Custom has universally prevailed, because pale and yellow Bile are every Day voided both by Stool and Vomit, not only by sick Persons, but by those in Health, but seldom any other sorts of Bile, and never but by such as labour under some morbus Affections." So also *χολὴ ξανθὴ* is called by *Hippocrates*, *Lib. περι ἀρχ. ὁρί. πικρῆς*, that is, Bitterness, or a bitter sort of Humour; and all Fevers are said to arise from Bile, *Lib. 4. de Morb.* and *Lib. 2. de Nat. Humana*, and in *Aph. 42. lib. 7.* in which he comprehends all putrid Fevers.

Χολή is also pretty often simply used by *Hippocrates*, to signify a Flux of Bile; and, in *Lib. de Loc. in Hom.* for any Desfluxion in general, which arises from a thin Humour lodged in any Part, and by its Nature easily disturb'd, and put in Motion; and he often uses the Word in this Sense throughout the Book, as, for Instance: *ὡς τὰ πολλὰ ἐμπνοὶ γίνονται ὅταν ῥεύμα ἐς τὸ αὐτὸ ὥσπερ ἐν τῇσι χολῇσι γίνηται, ἀλλὰ τῇσι μὲν χολῇσι πολὺ ἀπορροῖ.* "An Empyema, for the most part, happens when a Rheum falls upon the Part, as is the Case in bilious Desfluxions, which carry with them Plenty of Matter."

BILIS ATTRA, *χολὴ μελαινα*. Black Bile, or Melancholy, is almost constantly mention'd with its Epithet, and has a two-fold Origin; one from the thicker, and, as it were, muddy Part of the Blood, and this is properly call'd the melancholy Humour; Its other Origin is from yellow Bile, too much condensed

cocted and heated. This appears to be *Galen's* Opinion, in many Places of his Works; as in his sixth Comment on the sixth Book of the *Epidemics*, and on *Aphorism* the twenty-first of the third Book; and his Comment on the Book *de Rat. Viſt. in Morb. acut.* And in his Comment on the fifty-third *Aphorism* of the sixth Book, he ſays, μεμνῆσθαι ὅτι καὶ περὶ τῆς μελαίνης χολῆς ἐκ ἀλλοῖς διωρισμένων, ὡς, &c. “The Reader ought to call to mind my Definitions concerning black Bile in other Places of my Works, how that one Sort proceeds from yellow Bile, too much torrefy’d [*ὑπερεπιθῆσις*]; and this is the worst of all. Another Sort arises from the Mud, if I may ſo ſay, and Dregs of the Blood: This, indeed, is of a thicker Substance than the former, but is far less malignant in Quality. We told you also, that the Pile, which is a sort of Lees of the Blood, ought not, as yet, in Accuracy of Speech, to be call’d black Bile, but a melancholy Humour; but, by an Abuse of Names, we sometimes call it black Bile, because, if it be not evacuated in a little time, it will be really such.” *Foefius.*

Χολὴ μελαινα, black Bile, in the common Acceptation, signifies any thick and black Humour, whether it be the muddy Part of the Blood, or Blood adust, or Bile torrefy’d beyond measure, or however generated. But this Appellation properly belongs to a Humour render’d, by Adustion, preternaturally mordacious, acid, harsh, splendid, corroding, and malignant, which, pour’d on the Ground, bubbles up, and raises the Earth, after the manner of Ferment or Vinegar; is the Cause of incurable Ulcers; and is so nauseous, that neither Fly, nor Mouse, nor any other Animal, will taste it. It is generated two Ways; first, and principally, from a black and seculent Humour, which is beyond measure putrid and adust; the other Kind is from yellow Bile, vehemently adust, and is by far the more malignant Sort, as yellow Bile itself is more malignant than the melancholy Humour or Dregs of the Blood. Sometimes it proceeds, by Adustion, from vitelline Bile: Such an Alteration in the Bile is produced by a preternatural Heat and Putrefaction, by which it acquires an Acrimony, and is render’d like Ashes; just as the Lees of Wine, which are cold and dry before they are burnt, but afterwards become so hot as to burn the Flesh, and produce a Colliquation and Putrefaction therein. *Galen* has told us, that he never observed an Excretion of this kind of Bile without pernicious Consequences. Such *μελαινα χολή*, strictly speaking, is manifestly distinct, ἀπὸ τῆς μελαγχολικῆς χολῆς ἢ μέλαινα, “from the melancholy or black Humour.” For this latter is reckon’d among the Elements of the Body, and contributes, together with the Blood with which it is mix’d, to the Generation and Nutrition of the Animal, having nothing of an acrimonious or corroding Quality; but being, as I may ſay, the Mud or Sediment of the Blood, answers to the Lees of thick Wines. This Humour the Spleen attracts to itself, purging it from the Liver and Blood, and appropriates it, when alter’d, to its own Nourishment, expelling the Reliques, with other excrementitious Juices, into the Stomach, in order for Evacuation. The Excretion of this black Humour, whether by Stool or Vomit, is often healthful, signifying, that the Body is in a right Temperament, and that vigorous Nature, being oppress’d with too great a Plenty, finds a Way to ease itself of its burden: But if it be retain’d too long in the Body, without being evacuated by some sensible or occult Passage, it oppresses and debilitates the Liver, undergoes Alteration and Putrefaction, is render’d adust by some febrile Inflammation, and perfectly becomes that black Bile before spoken of.

Χολὴ μελαινα also, in *Athenæus*, passes under the Appellation of *χυμὸς ξυστικός*, “the corroding Humour;” so it is call’d there by one *Trapezethor*; and *Galen* assures us, that some gave it that Name, where, speaking of black Bile, he ſays, οὐμα οὐδὲν ἴδιον τῷ τοῦτο χυμῷ, πλὴν ὅτι τις ἢ ξυστικὴ ἢ ὀξώδης κεκλήσκειν αὐτὴν “This kind of Humour has no peculiar Name, except that there are some who have call’d it the corroding or vinegar-like Humour.”

Χολή also signifies τὸ χυλὸν ὅσον ἀργεῖον, “the Vessel containing the Bile,” *Pollux*, *Lib.* 2. and is sometimes used for the black Liquor of the Cuttle-fish.

Bilis, Fel, *χολή*, is that Humour in the human Body, which is distinguished by its Heat and Dryness. This is two-fold; one natural, which is call’d simply *Bile*, *χολή*; the other transgressing the Bounds of Nature. The natural Bile, which is mix’d with the Blood, contributes towards nourishing the Body: It is of a yellow or palish Colour, of a bitter Taste, thin Consistence, like the Flower of Wine, and of a heating and drying Virtue. The Substance of this Humour is contain’d, at first, in the Meat and Drink; which being concocted, the well-disposed Part of the Bile is converted, together with the Blood, into Nourishment for the Body; but what is excrementitious finds a Receptacle in the Gall-bladder. For as from new Wine, while under Fermentation and Changing, two Kinds of excrementitious Substances are separated by virtue of its Heat during that Alteration, one lighter and more airy, which they call the Flower; the other heavier, and of a more earthly Quality,

which they call the Lees; so from the Food are produced yellow Bile, of a thin Consistence; and black Bile, which is of a more dense and gross Contexture. But all the natural Bile; that is in us, does not proceed from the Aliments; for the Heat of the Liver and Veins, if a little exalted above the common Standard, sometimes converts the thinner Part of the pure Blood into yellow Bile. For as Choler proceeds from a weak Heat, Blood from a moderate Heat, so, from an immoderate Degree of the same, is Bile generated, which is endued with the Qualities above-mention’d, and so familiar to our Nature, as to be accounted among the Elements of our Body. But the Bile, which is above or below the natural Standard, is no longer call’d simply Bile, but has an Epithet denoting its bad Quality; and there are a Multitude of these vicious Biles, as the Excess of Heat, and other Qualities, will admit of a great Latitude; but almost all the Differences, taken Notice of by Physicians, borrow their Name from their Colour or Consistence. Thus,

Ἐρυθρά, the Red. This is either an acrimonious and mordacious Serum of the Blood, or comes very near, in Consistence, to a thin Blood; but because it does not concrete, like Blood, after Effusion, it is call’d *Bile*.

Ἰσάωδus, the Glasine; or what, by its Colour, resembles that of *Glaſtum, Wood*; but is indeed darker, and nearest the Colour of Cabbage. This Bile is extremely acrimonious, hot, and pungent, and next to black Bile in Consistence, Colour, and Efficacy. It is the most malignant among all the kinds of Bile, and is generated in the Stomach, or adjacent Parts, by a very vehement and burning Heat.

Ἰώδus, the *Æruginous*, or what is of the Colour of *Verde-grife*, that is, green. It is acrimonious, hot, and pungent to a great Degree, and next to the *Ἰσάωδus*, but not yet arrived to that Height of Malignity. It is generated in the Stomach, or in the Liver affected with a Phlegmon.

Κυανὴ ἢ κυανίζουσα, the Azure or Sky-colour’d. This seems to be the same with the *Isatodes*; for the *Isatis*, or *Glaſtum*, is of this Colour.

Λευκώδus, the Vitelline; that is, in Colour and Consistence, resembling the Yolk of a raw Egg. This Kind is of a gross Substance, and of a high yellow Colour. It comes of yellow Bile, too much concocted, and dried by an immoderate Heat, and, for that Reason, afterwards condensing. It nearly holds the middle Place between the natural Bile, and what is arrived at the highest Degree of Malignity. It is generated in the Vessels, as *Galen* writes in his Book *de atra Bile*, tho’ it is often voided both by Stool and Vomit.

Ξανθή, the Yellow. This comes nearest to the natural Bile, which ought to be a Medium between the pale Bile and the yellow.

Ὀγκρώδus, the Dark, or Obscure. This Epithet is used by *Galen*, in his fourth Comment on the sixth Book of the *Epidemics*. He seems to mean by it τὴν κυανὴν καὶ τὴν ισάωδον.

Πορρακώδus ἢ πορράωδus, the Porraceous. This is often generated in the Stomach, from indigested Food; and sometimes from a Disease, or preternatural Heat, in the Veins, whence it is convey’d into the Stomach and Intestines. But it is not produced by a vehement Heat, like the *ἰώδus*; for tho’ both Sorts are green, the *ἰώδus*, on account of a more vehement Heat, is more acrimonious, mordacious, and of a thicker Consistence; which Qualities belong to the *πορρακώδus*, but in a much inferior Degree. *Galen*, in his third Book *de Aliment. Facult.* writes, that, in severe Distempers, all sorts of Bile are voided, except the porraceous; but that the yellow, and the pale, and the porraceous also, are often voided, both upward and downward, by Persons in Health; which is a Proof, that the porraceous differs from the æruginous, as to Excess of Heat.

Πυρρὰ, which proceeds from a less intense Degree of Heat than the yellow. This Colour is a Medium between a pale and a yellow; therefore this and the yellow Bile have their Names often confounded, on account of the Nearness of their Colours, as *Galen* tells us, *Lib.* 1. *de Crisibus*, *C.* 12.

Ἵγρὰ, the Liquid; that is, diluted with Serum, or some other Humour.

Τδαλώδus, the Watery. This is the same as the *Ἵγρὰ*.

Ῥπικρώδus, Reddish, consisting of the Serum of Blood, or the thinner Part of it, mix’d with another Substance of a different Colour from Blood.

Φαῖδ, Brown. The same with the *ἱσάωδus* and *κυανὴ*.

Χλωρὰ, Green or Pale; for τὸ χλωρὸν signifies both, as *Galen*, in many Places, has observed; but what is properly green, has a Tincture of the Pale and Yellow.

Ὠχρὰ, the Pale. This is the most moderate of all the Kinds, and least hot. It is bitter and pungent, and generated within the Veins of a Body in its natural State. It is of a humid Quality, and but little inclining to the Yellow, because it is mix’d with some thin pituitous or aqueous excrementitious Humour. This Sort is more frequently understood by the simple Name of Bile, than the Yellow, as implying a less Excess of Heat, which is always contrary to Nature. *Gorræus.*

The natural Heat is diffused thro’ all Parts of the Body for the sake of Concoction; and there is, in all Parts, a Generation and Separation of Humours, but by different Ways, and such

such as are proper to each Part. Thus the Flesh creates and separates Sweat; the Eye, Tears; the Joints and Nostrils, Mucus; the Ears, Ear-wax. Therefore, if the natural Heat be incapacitated to perform its several Functions, it becomes acrimonious and fiery, and all the Humidities are changed into Bile; for Things become bitter, and infected with Bile, by means of the Heat. If this Indigestion happens in the Blood, it turns bilious, and disperses the Infection, with its Nutrient, into all Parts; for which Reason its Effects are universal, and Bile is every-where visible.

One Species of Bile is of a yellow Colour, subtile, transparent, and of a finer Sort than what inclines to livid or black: What is of a deeper Colour, like that of Saffron, or the Yolk of an Egg, is accounted of the same Kind.

A second Species of Bile is of a darker Colour, resembling that of a Leek or Wood, black.

Between these are an infinite Variety of Colours, which depend upon the Heat and Humours. The Viscera also are a Cause of this Diversity, as the Liver, if the Bile be yellow; the Spleen, if it be livid. *Arctæus, περὶ αἵμ. καὶ σπ. χ. 139. παρ. Lib. 1. Cap. 15.*

If an Inflammation proceeds from an Influx of Bile, the Intention is commonly directed to the Evacuation of the peccant Matter, both by Vomit and Stool. For this End, some Cholagogues are to be prescribed which work both Ways, such as the Hellebore; for an Acetabulum of this Plant, which is the greatest Dock, evacuate Bile both upwards and downwards. Also Medicines prepared with Scammony work upon and purge yellow Bile. We must, therefore, not make the least Scruple to administer a Purge, and repeat the same, if need be; for the Disease immediately submits to Evacuants. If the Patient, for some Reason or other, be either unwilling or unable to take a Purge, it will be proper to apply such Things to the Navel as will work upon and evacuate the Belly; or, to produce the same Effect by means of Suppositories, let a Clyster also be given, and Cataplasms apply'd, consisting of the Meal of Barley and Beans, with recent and unsalted Swine's Fat, and the fine Flour of Chamomile, and Water. But these Things are to be applied last of all; for, in the Beginning to the Height of the Distemper, we are to make use of Remedies composed of Hellebore, fresh Roses, Perdicium, Alkanet, Sanguinaria, Pulmonary of the Wall, Sideritis, Purslain, sharp-pointed Dock, Atroplex, Nightshade, Plantain, Henbane, Water-lentils, and Scutellary, Hues, Lettuce, Succory, Garden-mallow, Raspings of Gounds, Navewort, Violets, and Rinds of Pomegranates. Every one of these, applied with Bread of the Meal of Polenta, removes the Pain; but especially the Seed of Fleawort, macerated in boiling-hot Water, and, after it is reduced to a Mucilage, applied by way of Cataplasma. An Ointment of Litharge is also very proper to repress the Influx of Blood; so also are Apples, applied with Crums of Bread, and such-like Things. Cerates composed of Wax, Chamomile, and Oil of Roses, with the Juice of one or other of the before-mention'd Refrigerants, and the White of an Egg, and Water, with a little Vinegar, are of Service. Cerate of Oil of Roses, with a sufficient Quantity of the Juice of Beet, is an excellent Medicine. I have seen a Person labouring under this Disorder, who found wonderful Relief by putting his Feet into cold Water, and keeping them there awhile. Another I have seen, who made use of the Flesh of Oysters, with Litharge, Leaves of Henbane, and old Oil, carefully pounded together; and by Anointings, and Applications, made of the same, was very well restor'd. In want of Oysters, we may use River Shell-fish. These Remedies are sufficient, if the Inflammation and Heat are but moderate; but if they are excessive, we must manage the Cure as for an Erysipelas; that is, with the Leaves of Hemlock, Poppy, Mandrake, and Henbane, and Narcotics composed of Opium, and such-like Things. But, in the Use of these Medicines, our Intention is only to allay the immoderate Heat, which is often accomplish'd in an Hour; after which the stupefactive Medicine must be removed, and a Cataplasma of Bean-meal, Fat, and Water, be applied. For if those vehement Refrigerants continue longer on the Part, they induce a Stupor, and a Deadness or Dulness of Sensation: Wherefore when we are obliged, under acute Pains, to have recourse to Narcotics, we take care afterwards to revive and cherish the Parts by heating Medicines. *Actius, Tetrab. 3. Serm. 4. Cap. 28.*

The Bile is the hottest of all the Humours of an Animal, but differs in Degrees of Heat, according to its Colour; for the yellow Bile is hotter than the pale, and the æruginous than the yellow. It varies also in different Animals; so the Bile, or Gall, of a Swine is the weakest of all, and even cures Ulcers in the Ears, without shewing any pungent Quality. The Bile of a Sheep is more acrimonious than the Swine's; and the Goat's, than that of the Sheep. The Bile of a Bull is stronger than the foregoing, but weaker than that of the Hyena, which is yet surpass'd by those of the Callionymus and Scorpion Fish, which help Cataracts, Dimness of Sight, and an Albugo. The same Virtue belongs to the Bile of the Sea-tortoise; and the Bile of the wild Goat is said to be good in a Nyctalops.

The Bile of volatile Animals is more acrimonious and drying than that of Quadrupeds; and among them the Bile of Cocks and Partridges is accounted the best: Those of the Hawk and Eagle have more of a kind of Acrimony, and are corrosive; their Colour is æruginous, and sometimes black. *P. Ægineta, Lib. 7. Cap. 3.*

Yellow Bile is a bitter and yellow Excrement; porraceous Bile is acrimonious and greenish; æruginous, or rather violet-colour'd (*ιώδης*) Bile is highly pure and unmix'd; black Bile is the thick Sediment of Blood: Some call black Blood by the Appellation of black Bile. *Ruffus Ephesus, Lib. 1. Cap. 36.*

I now proceed to the modern Accounts of the Bile.

It is a just Observation made by Hippocrates, *That we are disorder'd and render'd sick, by means of those very Things which are immediately necessary to Life and Health.* What we call the Non-naturals, afford a palpable, but melancholy Proof of the Truth of this Assertion; for as Air, Meat and Drink, Motion, Sleep and Rest, are absolutely necessary for the Purposes of Life, so 'tis no less certain, that any Fault or Imperfection in these Things produce Disorders in themselves the most terrible, and to the human Constitution the most fatal. This holds true, not only with regard to Things extraneous to the Constitution, but also with respect to those internal Substances which are immediately conducive to the Support of Life, and the Preservation of Health, such as the Blood, the Lymph, and the Animal Spirits; for, as the Perfection of the vital Functions depends upon the due State and Temperament, the just Commixture, and Degree of Motion of these Substances; so the more immediate and direct Causes of Diseases must be derived from the Defects they labour under, and their several Degrees of Recess from a natural State. There are also other Fluids in the Body, which, tho' not so immediately, are yet so absolutely necessary to Health, that their becoming faulty or peccant must considerably destroy it, and lay an unavoidable Foundation for Diseases. Instead of all other Instances of this Kind, I shall, at present, confine myself to the Bile; the Usefulness and Necessity of which Liquor, for the Preservation of Life and Health, are sufficiently known to every one who is acquainted with the rational and solid Principles of Physic. Its being found in every the most minute Animal is a sufficient Proof of this; for there is not a Possibility of finding, in the whole Extent of Nature, a single Insect destitute of a bilious Humour. And, indeed, when we come to explain our Sentiments on this Subject, we must acknowledge, that the Bile lodged in the Bodies of Animals is a real and genuine Medicine, wisely elaborated by unerring Nature, for preventing Diseases, destroying their Causes, and correcting the Faults and Disorders of the Constitution; and that, by means of its incomparable Virtue and Energy, Animals are kept alive, and preserved in an easy and comfortable State of Health, as I shall, in the Sequel, shew more fully. Since, then, the Bile is so highly useful and efficacious in maintaining a State of Health in the Body, by proving, as it were, a natural and universal Medicine, it must of course follow, that when this Liquor is either faulty, with regard to its Quantity, or depraved by a Recess from its due Temperament and Crass, a sure and unavoidable Foundation for Diseases must be laid: Since then many, and these, too, formidable Disorders draw their Origins from some Fault of the Bile, the principal Virtue and Energy of the Medicines, employ'd in curing them, ought to consist in correcting this Liquor when peccant in Quality, generating it when defective, or evacuating it when too abundant in Quantity; for as the Bile, when in its due State, is justly to be accounted a true and genuine Medicine to the Body, so we must readily grant, that the most important of all other Medicines are such as are calculated for reducing this Liquor to a natural and temperate State; and that the principal Business of a Physician consists in inventing and applying such Remedies with Judgment. I shall therefore make it my Business, at present, to consider the Bile, not only in its natural State as an universal Medicine to the Body, but also in its preternatural and depraved State, as the Cause and Origin of many Disorders.

'Tis well known to Anatomists and Physicians, that the principal, if not the only, Office of the Liver is, by the Laws of a certain beautiful Mechanism, to filtrate and strain that active, saline, and sulphureous Humour, call'd the Bile, from the Blood, thro' the Trunk of the *Vena Porta*, the Hepatic Artery, and its glandulous Kernels.

It must be own'd, Anatomists are not agreed among themselves whence the Gall-bladder, adhering to the Liver, is supply'd with the Bile it receives; for some of them are of Opinion, that the *Tunica Glandulosa* separates it from the Blood convey'd thither by the Cystic Arteries; others again maintain, that there are some very minute Duets inserted in the Bottom of the Gall-bladder, by means of which the Bile is convey'd to it; and another Class of Anatomists venture to affirm, that there are certain Cysti-hepatic Duets, by means of which the Bile is immediately convey'd to this Receptacle. But, what Judgment we ought to form concerning these different Opinions, we may learn

learn from the following Experiment, made by *Bohnius* and some others. Upon opening a Dog, the whole Bile was express'd from the Gall-bladder, and the Cystic Duct tied; but the Subject remaining alive for some time after, they expected to find some more Bile in the Gall-bladder, notwithstanding the Ligature on the Cystic Duct, and tho' all Communication was cut off between the Gall-bladder and the *Porus Hepaticus*. But they were disappointed; for, instead of Bile, they found only a little grumous Blood. Hence the more accurate Anatomists justly maintain, that the Bile lodged in the Gall-bladder is convey'd to it from the common Hepatic Duct itself: For the Communication between these Ducts is highly obvious, since, by blowing into the *Ductus Cholodochus*, both the Gall-bladder and *Ductus Hepaticus* are inflated. On the other hand, by introducing a Pipe, and blowing into the Hepatic Biliary Duct, the *Hepatic Duct* itself, the *Cystis*, and the *Ductus Cholodochus*, are distended. In Man also, and in other Animals, the *Hepatic* and *Cystic Ducts*, uniting, form together one common Canal. Now if we consider the Situation of the Gall-bladder, its Bottom is placed in a low declining Part; but its Neck, and the Biliary Ducts, are situated higher: Hence 'tis probable, that when the Bile descends slowly thro' the *Porus Cholodochus*, by reason of its oblique Insertion among the Coats of the *Duodenum*, especially if that Intestine happens to be empty, it falls back into the Gall-bladder, which is placed below, especially if it is not very full; where it remains, till, either by the Compression of the Intestines, or the proper Contraction of the Gall-bladder itself, it is again express'd. In an Ox this appears very plainly, since the Hepatic Duct so opens into the Neck of the Gall-bladder, which is pretty tendinous and nervous, that the Bile can as easily descend into the Gall-bladder, as it can be sent off to the *Duodenum*, thro' the common Duct. In the same Subject a pretty surprising Circumstance occurs; for a certain small Papilla is observable, almost in the Middle of the interior Membrane of the Gall-bladder, and is prominent almost in the same manner as the Extremity of the *Ductus Communis* appears to be in the *Intestinum Duodenum*. This small Papilla seems to be the Orifice of the Duct, which passes between the Membranes of the Gall-bladder; and the Protuberance performs the Office of a Valve, by preventing the discharged Bile from returning the same Way it went out.

But the Bile in the Gall-bladder differs very considerably from that in the Liver; for the former is thicker, more acrid, more bitter, and of a deeper Colour, than the latter, which is more fluid, more diluted, and less bitter. But by what Means, and for what Purposes, the Bile contain'd in the Gall-bladder undergoes such a Change, seems to be a Matter of such Importance, as to deserve an accurate and careful Disquisition; and that our Inquiry into this Particular may be the more distinct, I shall premise a few Things concerning the Structure of the Gall-bladder. We observe, then, that the Gall-bladder is made up of several Membranes, the innermost of which, almost in every respect, resembles the *Tunica Villosa* of the *Duodenum*: In this Membrane there are also various Furrows and Ducts, with Valves appropriated to them; but no Glands are to be discover'd. The Membrane which lies next to this is of a spongy vascular Contexture, made up, as it were, of various Pellicules, in which small Bubbles of Air are lodged. 'Tis not to be doubted, but this Membrane affords an Origin to a large Number of Lymphatic Vessels; tho', at the same time, very many of those, found in the *Cystis*, are distributed in it immediately from the Liver. The third Coat is muscular or fibrous; but we neither observe a nervous nor a tendinous Coat, either at the Bottom of the Gall-bladder, or in its Cavity; however, not only its Neck, but also the *Hepatic* and *Cystic Ducts*, are made up of a pretty strong tendinous and nervous Coat. The external Coat is furnish'd from the *Peritonæum*; and between this and the muscular Coat, arterial and venous Ducts are seen distributed. The Neck of the Bladder is very narrow; and this Circumstance is very conspicuous in the Gall-bladder of an Ox, but no Valve can be observed in it; however, *Bauhine* and *Spigelius* have, in human Subjects, discover'd a semilunar Valve, extended in the Form of a spiral Shell, and render'd rough with many Furrows. I must own, I could never find such a Valve in human Bodies; but I have evidently discover'd the Narrowness of the Passage, which is not rectilinear, but runs along in so oblique and winding a manner, as to resist a Probe, when introduced into it: And this Narrowness seems to be of no other Use, than to prevent the Return of the thicker Bile, when once discharged from it into the Gall-bladder; but the thinner and more diluted Hepatic Bile finds a commodious Passage thro' it.

The interior Coat of the Bladder being villous, like that of the *Duodenum*, performs the Office of a Strainer, by securing the thin and watery Part of the Bile, and pouring it into the Lymphatic Vessels; for it is not to be deny'd, that the Vessels not only in the Gall-bladder itself, but also those distributed around it, contain a Lymph of a bitterish Taste. Besides, 'tis confirm'd by many Observations, that, in a preternatural State, a large Quantity of thin Bile has cused thro' the Pores of the

Coats of the Gall-bladder: But because this interior Coat separates the thinner Part of the Bile, what remains of course acquires a thicker Consistence, and a more bitter Taste. Besides, the Bladder, by reason of its carnosé Tunicle, and considerable Nerves, is possess'd both of a Power of Sensation and Motion; but more especially its Biliary Ducts, which are furnish'd with a pretty strong and nervous Coat; for which Reason very terrible Pains and Spasms may sometimes happen in them. As *Vienssens* has justly observed, from the semilunar Hepatic Plexus of the Right Intercostal Nerve, there arise six Fibres; the three inferior and smaller of which are distributed to the *Vasa Cholodocha* of the Gall-bladder, to the *Pylorus*, the *Duodenum*, and the *Pancreas*, in order to give them a due Tone and Constriction. Hence also the great Consent between these Parts is to be accounted for; and it is not to be doubted, but that the Bile descends into the Intestines by means of its Weight, and is also assisted in so doing by the proper Motion of the Ducts. Besides, we ought carefully to advert to the Insertion of the *Ductus Cholodochus*, which creeps along, almost for an Inch, between the exterior and interior Coats of the *Duodenum*, and at last opens with a round Orifice into its Cavity.

But before I treat of the remarkable Use, and absolute Necessity, of the Bile, or consider the several Faults and Imperfections to which it is subject, I judge it highly expedient to premise such Things concerning its Nature and Qualities, as we learn from Experiments made upon it, that we may be the better able to form a Judgment of the various Phenomena and Disorders produced by it. First of all, then, let us have recourse to the Evidence of our Senses; since, from the Taste and Smell of any Substance, we are in some measure enabled to judge concerning the Nature of those Principles, of which it is made up and compos'd. It holds, then, universally true, that the Bile of every Animal is so intensely bitter, that a very small Drop of it communicates its Bitterness to half an Ounce of Water, when put into it. Now 'tis universally acknowledged, by the more knowing and skilful Part of the Chymists, that Bitterness of Taste proceeds from an intimate Commixture of a somewhat earthy Sulphur with a Salt; but what the Nature and Genius of this Salt may be, I shall now inquire. According to our Conceptions, and indeed according to the Result of Experiments, an Acid, intimately joined with an earthy, alkaline, and sulphureous Substance, forms a bitter Mixture. Thus the sulphureous and acid Spirit of Vitriol, coagulated with Salt of Tartar, or fix'd Nitre, produces a neutral Salt of a bitterish Taste, as in vitriolated Tartar, and the Arcanum Duplicatum; tho' very sulphureous Wine-vinegar, pour'd upon prepar'd Coral and Crabs-eyes, afford a neutral Salt, which is still somewhat more bitter. Besides, 'tis confirm'd by Chymical Experiments, that the bitterest Substances, such as Aloes, bitter Gourd, and Wormwood, lose much of their Pungency of Taste by an Admixture of alkaline Salts; which is no weak Proof, that an Acid contributes not a little to the Production of that Bitterness of Taste which is found in the Bile of Animals; since, when that Acid is destroy'd, the Bile becomes insipid and tasteless. It is also confirm'd by Experience, that bitter Vegetables, by Incineration, yield a larger Quantity of Salt than any others; but 'tis certain, that a fix'd alkaline Salt is generated or produced by an intimate Combination of an acid Sulphur with Earth.

Besides, the penetrating and permanent Taste of the Bile, when applied to the Tongue, is a Circumstance which sufficiently proves its remarkably active Nature; for every Substance which penetrates, and diffuses itself upon, the Organs of Taste, is of a subtle Quality. Among other Circumstances, which prove its highly penetrating Force, it is none of the least considerable, that when a few Drops of it are pour'd upon the Coat of the Stomach, or any of the Intestines, a deep-yellow Colour, not to be obliterated or wash'd off by any Art, is forthwith induced on the Part to which it is applied. Its penetrating Qualities are sufficiently known to Hatters, who, in order to give a deeper and more lasting Colour to their Hats, mix it with Substances of a black and inky Colour. Its Saffron-colour may also be easily accounted for, from the highly subtle and active Sulphur it contains, if the Chymical Axiom is right, that *real yellow or red Colours are produced by Sulphur*. But Chymical Distillations, and Mixtures of Bile with other Substances, discover its Elements, or component Parts, far more effectually than any thing else. Thus twelve Ounces of the Gall of an Ox yield eleven Ounces of Phlegm, intirely void of all Taste: From the remaining Ounce there was afterwards drawn a Spirit of an ungrateful and empyreumatic Smell, which speedily produced an Effervescence with Spirit of Nitre, and tinged Syrup of Violets green, as a Proof of its alkaline Nature: It also yielded something like an Oil, partaking of the Nature and Effects of the above-mention'd Spirit. The earthy *Caput Mortuum*, which remain'd in the Retort, and weigh'd two Drains and an half, by Incineration, yielded one Dram of a manifestly fix'd alkaline Salt: From this Experiment 'tis obvious, that there is a very great Quantity of Water in the Bile; which is also plain from this, that it may be reduced to an Extract; for two Ounces of

Ox's Gall, inspissated in a gentle Heat, yield not more than one Dram of thick Extract. Besides, by the Assistance of a proper statical Instrument, four Ounces of *Bile* are found to weigh scarce two Drains more than an equal Quantity of pure distilled Water. If the Extract of Ox's *Bile* is mix'd with an equal Portion of Salt of Tartar, and again distil'd in a Glass Retort by means of a Sand-heat, then an urinous and manifestly alkaline Spirit is yielded, which raises a violent Ebullition, with any Acid; it also turns the Solution of Sublimate to a milky, and the Syrup of Clove-gillyflowers to a greenish Colour, which all volatile urinous Salts generally do. But the Reason why an Addition of the Salt of Tartar produces a more alkaline, volatile, and urinous Spirit, seems to be this: Calcin'd alkaline Salts make a very close and strong Attack on the Texture of oleous Substances, and, by destroying their acid Parts, volatilize and alcalize their Sulphur more highly. Something of a like Nature is observed to happen in distilling Soot, Amber, and Tartar, which, when distil'd alone, yield an oleous acid Spirit; but if, before Distillation, they are mix'd with a fixed Salt, the Spirit obtain'd is highly urinous and oily.

I now come to consider the Mixtures of *Bile* with other Substances, the Use of which, in discovering the Virtues and component Parts of Bodies, is very great. It is, therefore, confirm'd by Experience and Observation, that *Bile* produces an Effervescence with no Acid, except our fuming Spirit of Nitre. This Phenomenon seems to run counter to common Experience, since the *Bile* is thought to be of an alkaline Nature: Nor does the Gall of an Ox produce an Ebullition, with highly concentrated Oil of Vitriol, nor immediately assume a greenish Colour, as many imagine; but Perturbation, Coagulation, and Precipitation, are rather the Results of their being mix'd. But it is remarkable, that Spirit of Salt renders *Bile* thicker than Spirit of Nitre and Vitriol; and that it is not at all coagulated by Spirit of Nitre. When concentrated Spirit of Sal Ammoniac, prepar'd with quick Lime, is mix'd with *Bile*, its Colour is exalted, it becomes more saturated, and the Mixture remains diaphanous. The same Phenomena are produced, when the Experiment is made with Oil of Tartar per Deliquium. But we must here observe, that an Admixture of Alcalis very much impairs and diminishes the Bitterness of its Taste. When *Bile* is mix'd with the Syrup of Clove-gillyflowers or Violets, the Mixture does not become green, but assumes such a Colour as is usually produced by a Mixture of a yellow and a red Substance. Highly rectified Spirit of Wine also renders *Bile* turbid, and it loses its Transparency when mix'd with it; but a very small Quantity of the *Bile* is precipitated in it, and the Spirit becomes highly bitter. On the contrary, a very small Quantity of *Saccharum Saturni*, sprinkled in *Bile*, produces a very thick Coagulum in it. But inspissated *Bile*, upon pouring Oil of Vitriol into it, did not produce an Effervescence, but lost its blackish Colour, and became gradually livid; the Mixture, in the mean time, was of a highly disagreeable Smell. Our fuming Spirit of Nitre, mix'd with Extract of *Bile*, produced a very strong Effervescence, accompanied with a great deal of Froth, Heat, and a reddish Smoke; but the Extract was dissolved into a Mucus, which, by means of Oil of Vitriol, was reduced to a Coagulum of a more pitchy Colour: Almost the whole Extract was dissolved in Spirit of Wine; as also in Water. The Extract of *Bile* dried, and exposed to a Flame, melted; nor did it immediately take Fire, for it did not burn till its humid Parts were evaporated: It diffused the Smell of a fetid volatile Salt; and the Ashes left were impregnated with a large Quantity of alkaline Salt, as was obvious from their Taste.

To the Experiments already mention'd, I shall add the following Observations. The *Bile* newly taken from the Gall-bladder of an Ox, is diaphanous, and pretty fluid; but when it is exposed to the open Air for some Hours, its Transparency is diminish'd, it becomes thicker, changes its Smell, and in Process of Time grows fetid; for 'tis scarce credible how easily, and how soon, the *Bile* contracts an abominable Fætor, even much sooner than the Blood itself; which is a Proof, that as all the other Fluids of Animals, so the *Bile* consists of Parts, whose Union and Commixture the Heat of the Air alone is sufficient to disjoin and separate. It must also be observed, that the Serum of Blood or Lymph, held over a gentle Heat in a Spoon, is converted to a gelatinous Mass; which Experiment is in vain tried upon *Bile*, which is less coagulated by Heat, because the nutritive Lymph is none of its component Parts. As for the Uses made of *Bile* by Trades-people, it is most generally employ'd by Scourers, for taking greasy Stains out of Cloaths; and by Painters, for heightening their Colours, and cleaning Pictures; for which last Purpose it is very good. Besides, Ox's Gall proves an excellent stimulating Ingredient in a Clyster; and, by some, the Galls of other Animals are prescrib'd with Success, in Epilepsies, Quartan Fevers, hard Labours, and Hysteric Fits.

These, then, are the Experiments which I made with the *Bile* of an Ox. However, I do not deny but the *Biles* of other Animals are, in some measure, different from it; and that even

the *Bile* of one and the same Animal is not, at all times, of the same Nature and Qualities. I could not subject any considerable Quantity of human *Bile* to Distillation, because I had it not; but I am of Opinion, that its Difference from the *Bile* of an Ox consists in this, that it is somewhat thicker; by which means it happens, that by pouring Aqua-fortis into it, or Spirit of Vitriol, and applying a brisk Heat, an Effervescence is produced, and the Mixture becomes green: Hence also it happens, that it is quickly coagulated by rectified Spirit of Wine. Hence it is not to be doubted, but that the human *Bile* is of a far more active Nature, and more richly saturated with a saline and sulphureous Principle, than the *Bile* of other Animals: I must here observe in general, that the hotter Animals are, their *Bile* is proportionably of a more active Nature, and *vice versa*.

The above-enumerated Experiments sufficiently prove to us, that the *Bile* is not of a pure alkaline Nature; hence it does not produce an Effervescence, but with the strongest Acids: Now every pure Alkali, whether earthy or saline, speedily causes an Ebullition with every the most weak and gentle Acid. Hence we learn, that the *Bile* is of an oleous and sulphureous Nature, for which Reason it burns; but it is not purely sulphureous, otherwise, when mix'd with Spirit of Nitre, or our fuming Spirit of Nitre, it would excite a tumultuous Effervescence; for such is the Nature of subtile Oils, that, when mix'd with these Spirits, they produce an Ebullition; so that the *Bile* seems rather to be a very temperate Liquor, made up of oleous, earthy, aqueous, saline, and volatile Particles. And, to explain myself in a few Words, the bitter *bilious* Juice in all Animals, in its Commixture and Crasis, almost resembles the Juices of bitter Herbs; especially that of the lesser Centaury, the Extract of which is not much different from inspissated *Bile*; for the Juices of all these bitter Plants are made up of Sulphur, and an earthy alkaline Salt. As to these Plants, we ought also to consider, that their Juices, when depurated and distil'd in the same manner with the *Bile*, when mix'd with acid, alkaline, and spirituous Menstruums, cause Phenomena so much like those produced by the *Bile*, that we have all the Reason in the World to believe, that the constituent Parts of these Simples, as to their Mixture, Crasis, and Virtues, are the same with those of the *Bile*: Hence the Reason is obvious, why the Extracts and Essences of bitter Plants are so singularly and surprisingly efficacious in augmenting the Quantity of the *Bile*, when it is defective; and in correcting it, when its Quality is depraved; two Circumstances which contribute not a little both to the Prevention and Cure of Diseases.

Having thus taken a View of the Nature and Qualities of the *Bile*, it now remains, that we inquire into the particular Manner in which it is generated and elaborated in the Body. First of all, then, I must observe, that the *Bile* does not exist in the Blood, under the same Form, and in the same State, in which it appears in its Receptacles, which are the *Porus Hepaticus* and *Gall-bladder*; for neither the Blood nor Serum are bitter, nor, in a natural State, are they yellow; but the Serum becomes so by an Admixture of *Bile*. For which Reason it is plain, that the Materials, of which it is composed, are only lodged in the Blood; which does not at all appear improbable, when we consider, that large Quantities of Sulphur, Earth, Salt, Phlegm, and Mucus, of all which the *Bile* is composed, are found in the Blood. Now 'tis known from Chymico-mechanical Experiments, that the Qualities, Properties, Tastes, and Smells of Bodies, depend entirely upon the Mixture, Union, Position, Crasis, and Texture of their various Parts; which when chang'd or destroy'd, a proportionable Change is induced on the Taste, Smell, Consistence, and Virtues of the Body. For this Reason a peculiar Mixture of the pinguious, saline, earthy, and aqueous Parts of the Blood, separated from the Blood and Serum by means of their intestine Motion, constitutes and makes up the *Bile*. But to me it seems somewhat improbable, that the *Bile* should consist immediately of the chylous Parts of the Blood, or those which are most slightly united with it; but I am of Opinion, that all these Parts being resolved and separated from the Blood, by means of its intestine Motion are afterwards united, and form the *Bile*. Hence we plainly see, that a large Quantity of *Bile* must necessarily be generated in People whose Blood is agitated with a strong and violent intestine Motion: Hence it happens, that young Men of choleric Habits, who enure themselves to Exercise, and live upon hot Food, abound with *Bile*; whereas old Men, Children, the Phlegmatic, the Idle, and the Lazy, have an aqueous, thin, and unactive *Bile*. Burning, continued, and tertian Fevers, afford us a signal Proof of this; since, in them, too great a Quantity of *Bile* is produced by the violent intestine Motion, which dissolves the Contexture of the Blood; for it is surprising to observe, what large Quantities of *Bile* are daily discharged, in the above-mentioned Fevers, by Urine, Stool, and Vomit; for which Reason the Antients imagin'd, that the *Bile* thus discharged was the productive Cause of the Fever, whereas it is rather its Effect. For Instance, we observe, that the more violent and lasting a tertian Fever is, the Excrements are proportionably more bilious: Nor does Nature cease to generate new *Bile*, even during the

the Paroxysm of the Fever ; but this Fever is removed, or rather stopp'd and suppress'd for a while, by the Use of that celebrated Medicine the *Peruvian Bark* ; for by using it a short time the fiery Colour of the Urine is removed, it becomes thin and aqueous, and the Excrements assume their natural Colour ; but, as soon as the Fever returns, all these Symptoms return with it. From what has been said it is sufficiently plain, that the Blood itself may, by a too hot intestine Motion, be resolv'd into *Bile*, and other excrementitious Liquors. The Truth of this is also confirm'd to us by hectic and latent Fevers, where the Blood itself is, by a continual and excessively violent intestine Motion, at last consumed, and converted into *Bile* and Excrements. Among the few who have adverted to this Circumstance, none have been more explicit than *Hildanus*, who (in *Select. Medic.*) has these Words :

“ 'Tis something wonderful and surprising, that, on some Occasions, large Quantities of *Bile* should be evacuated, and yet the Gall-bladder not be found empty after the Death of the Patients ; 'tis not, in consequence of this, to be doubted, but that the Blood is, by an inflammatory Heat, parch'd and converted into *Bile*. ” We farther observe, that the more we abstain from Food, and the more Exercise we use, a proportionably larger Quantity of *Bile* is generated ; whereas an inactive Life, and high Feeding, prevent and hinder its Generation.

Having taken a View of the Origin of the *Bile*, and its generating Cause, I shall now inquire in what manner the Particles, forcibly separated from the Blood by its intestine Motion, are united into *Bile* ; which Phenomenon I deduce from the slow and languid Progress of the Blood thro' the Liver : But, for the better Illustration of this Point, I shall assume the following mechanical Axioms.

1st. Substances capable of being mix'd, the more they are agitated, and the more quickly they are moved, the more their Particles are divided and broken.

2d. The more minute the Parts are render'd by Motion, the more closely are they united, and the more difficultly are they separated from the rest ; because large Bodies, by being divided, have the Sum of their Surfaces increas'd, and, in proportion to the Smallness of the Parts into which they are resolv'd, that Force, with which one Fluid endeavours to recede from another, is diminish'd. Hence it follows, that the homogeneous Particles must unite, come together, and more easily separate themselves from a Mixture of heterogeneous Parts, when their Motion is diminish'd or destroy'd, as we evidently see in extravasated Blood, in which, upon a Cessation of its Motion, the Serum is separated from the Crassamentum. Since, then, we know from Anatomical Observations, that the Circulation of the Blood is slowest in the Liver, because it is convey'd to it by the Vena Portæ, which has no Pulsation, and is introduc'd into the smallest Ramifications dispers'd thro' the Parenchyma of the Liver, in which it does the Office of Arteries ; and since an *Impetus* of Motion is wanting ; the Blood must move slowly not only in this Organ, but also proportionably so in all the Viscera, which have Vessels distributed to them from the Vena Portæ. Hence the Reason is obvious, why the Liver, the Spleen, the Pancreas, the Mesentery, and Intestines, are, for the most part, the Seats of the most violent chronical Disorders ; since, in these Parts, Obstructions, Indurations, Stagnations of Blood, Inflammations, and Corruptions, may very readily happen. For which Reason, since in this Vein the Blood is deprived of its sweet and chylous Parts ; its gross, sulphureous, and saline Particles, as it were, parched with Heat, together with its mucilaginous and lymphatic Parts, moving slowly, unite, are collected and secreted ; by which new Union and Mixture, a new State, Crasis, Taste, and Colour, result. But 'tis not to be doubted, but that the new-generated *Bile* is successively more assimilated to that in the Cystis and Biliary Ducts, that it may prove a kind of Ferment ; for as the Blood, by its intestine Motion, helps the Transmutation of the new Chyle into Blood ; and as Vinegar converts Wine pour'd to it into Vinegar ; so the *Bile*, upon the Approach of the like Juice from the Blood, easily communicates its own Form and Texture to it.

Having thus consider'd the Nature of the *Bile*, and inquir'd into the particular Manner in which it is generated, I now come to shew, that the *Bile* is a noble and useful Medicine to every Species of Animals. This I shall endeavour to prove by the following Arguments. First, then, there is not in Nature an Animal destitute of this Liquor ; for 'tis found not only in Quadrupeds and Birds, but also in the most inconsiderable and diminutive Insects ; and tho' some Animals want a Gall-bladder, yet they by no means want a Liver and Ducts conveying the *Bile* from it either to the Stomach or Intestines. Secondly, the Necessity of the *Bile* in Animals appears from this, that wise and unerring Nature has appointed so large an Organ, and which takes up so considerable a Space in the Abdomen, for no other End but to secrete and distribute it ; now 'tis certain, that no Animal whatever wants this Organ. Thirdly, among other Things of an Anatomical Nature, 'tis worth while to observe, that, in most of the more noble Animals, the *Bile* is

convey'd by a double Way, or Duct, from the Liver to the Duodenum ; for, besides the Hepatic Duct, which conveys the *Bile* immediately from the Liver, there is also a *Cystic Duct* ; and these, for the most part, join, and coalesce into one common Duct, which is call'd the *Ductus Cholodochus*. If we reflect rightly upon this surprising Contrivance, we must have our Minds fill'd with the most noble and elevated Ideas of its Author ; for, since this Liquor is absolutely necessary to the Life of every Animal, if one of these Ducts should happen to be obstructed, so long as the other remains pervious, this balsamic Liquor may be carried to its destin'd Parts ; or if, on any Occasion, it should be elaborated in too great a Quantity, it is, by this means, stor'd up for future Use, as it were, in a Repository. Fourthly, the Use of the *Bile* appears from this, that, in all Animals, it enters the first Intestine or Duodenum, very near the Stomach, and is there pour'd upon the Mass of Aliments. If then it had been an excrementitious Liquor, or hurtful to the Constitution, the all-wise Author of our Nature would have rather thrust it directly into the Intestinum Colon, or Rectum, that it might not, by its Sordes, contaminate and corrupt the Chyle, which is the Food and Nourishment of the Blood, and of the whole Body. In the last Place, its singular Use, and absolute Necessity, are sufficiently demonstrated, by its being generated in such a large Quantity ; since, according to some, and especially *Borelli*, there is a Pound of this Liquor produc'd every Day in the larger and more bulky Animals.

Tho' the above-mention'd Arguments are founded only upon probable Conjectures ; they are, nevertheless, sufficient for proving the Usefulness of the *Bile*. But that I may be a little more clear and explicit upon this Point, I lay it down as a Maxim not to be contested, that Life, and much more Health, depends upon a constant and uninterrupted, a due and equable Circulation of the Blood and Humours thro' the whole Body. This Motion of the Blood is justly dignify'd with the Epithet *Vital* ; for it preserves the Body from Putrefaction, renders it sound and durable, and nourishes or repairs that latent and inconceivable Principle, by means of which the Union and Correspondence between the Soul and Body are maintain'd. So long then as this Circulation of the Humours is free and uninterrupted, we are said to enjoy Life and Health ; but as soon as it begins to be impair'd, various Indispositions, Pains, Depravations of the Actions of the Body, Putrefaction, and, at last, Death, happen. Now, in order to maintain and keep up this Circulation, 'tis absolutely necessary, that the Blood should be in such a State of Fluidity, as to be able to move freely thro' the smallest and most minute Ducts of the Body. 'Tis also requisite, that the component heterogeneous Particles of the Blood should be intimately mix'd and united, since this very Circumstance constitutes its Crasis and Texture. Now, 'tis confirm'd by Experience, that nothing is more prejudicial and injurious to the Texture of the Blood, than tenacious, viscid, and acid Substances ; for these are destructive of Fluidity, are not easily put into an intestine Motion, and cannot be intimately mix'd with other Fluids. Now 'tis obvious, that we eat various Substances which abound with an acid, a viscid, and tenacious Principle, from which a thick, viscid, and immiscible Blood and Chyle must be produc'd. Besides, 'tis necessary for Life, not only that the Blood should be in a State fit for Circulation, but also that proper Motion should be used ; for Motion is essential to Life and Health. 'Tis plain that those Fibres of our Bodies, which are destin'd for the Purposes of Motion and Contraction, perform their respective Offices better and sooner, when extraneous Bodies in Motion act upon them by their penetrating and active Qualities ; for we observe, that only the penetrating Smell of Wine, spirituous Liquors, and volatile Salts, soon raise the faint and languid Motions of the whole Body. Nature has also need of such a natural Mover, to give due Motion and Impulse to the solid Parts, without which the Circulation could not be carried on, nor Life and Health preserv'd.

I now come to consider, by what means the *Bile* is the natural and universal Medicine of our Bodies ; and how it comes to pass, that it affords all the Supplies necessary to the Fluidity and Motion of the Blood, by which Diseases and Death are prevented. I have already shew'd, that the *Bile* is a Liquor of a very active and penetrating Quality, since it is compos'd of sulphureous oily Parts, mix'd with volatile and fix'd Salts ; and, at the same time, of a very temperate Nature, by reason of the Admixture of aqueous and earthy Parts. This Liquor, partly by its penetrating Quality, and partly by its Texture, incises, temperates, and corrects the viscid, thick, and acid Matter, which comes from the Stomach ; and, which is a Circumstance of the greatest Importance, it contributes very much to render the Chyle, and consequently the Blood, volatile, mild, and spirituous. Now 'tis not to be doubted, but that, not only in the Stomach, but also in the small Intestines, the Aliments undergo an intimate Solution and Fermentation, whereby their Adhesion and Texture are intimately dissolv'd and destroy'd ; as the Change induc'd upon their Taste, Smell, and Consistence, sufficiently proves. Now 'tis known, that spirituous and active

Liquors,

Liquors, added to Substances during their Fermentation, intimate to dissolve these Substances by an intestine Motion, and add an excellent spirituous Quality to them. The same happens, when the *Bile* is pour'd upon the Aliments when under Fermentation; for, by this means, the acid and viscid Principles are not only corrected and subdued, but the chylous Mass itself is render'd gently spirituous, subtile, temperate, and of a sweetish Taste. But that the *Bile* undergoes a Fermentation in the Intestines, we may gather from its entirely laying aside its Bitterness; for the fermentative intestine Motion intimately dissolve, and fully inverts the Union, Crasis, and Texture of the Parts on which its Taste and Quality depend. Thus the *Bile* prepares the Chyle in the *Primæ Viæ*, and renders it fit and disposed for performing the vital Circulation, and conveying Nourishment to the whole Body; and without this Humour, the Chyle remains thick, crude, undissolv'd, and unfit for progressive Motion; and when 'tis convey'd, in such a Condition, into the Mass of Blood, it must lay an effectual and sure Foundation for Disorders and Indispositions. *I have been obliged to preserve the Word FERMENTATION, in order to give the Meaning of Hoffman; but must confess, that it conveys to me no satisfactory Idea, and gives me no Information.*

A Chyle thus season'd with a spirituous Balsam, when it reaches the Blood, is intimately mix'd with it; for the more subtile and fine the Parts of Fluids are, the more easily they admit of an intimate Mixture; and, on the contrary, the thicker Fluids are, the more easily they recede from the other heterogeneous Particles. The Chyle, also, being impregnated with a certain stimulating Salt, proves an excellent Quickener of the Tone and Impulse of the moving Fibres of the whole Body; by this means the Circulation of the Humours, which remains active so long as the Fibres are in a due State of Vigour, becomes quicker and more free. For this Reason the *Bile* was by the Ancients, and still is by the Moderns, justly styl'd the Balsam of the Body; not because by its balsamic Quality it prevented a Disposition to Putrefaction, but because it contributed much to the quick Circulation of the Blood; for this Circulation, if I may so speak, the best Balsam to the Body, in which there can be no Corruption so long as it remains entire; for the perpetual progressive Motion of the Body, together with its Fluidity and spirituous Nature, resists the Tendency to Putrefaction, beside, by means of this circular Motion, many recrementitious and superfluous Parts, which are strongly inclin'd to Corruption, are evacuated, and carried off by the proper Emmenories.

There is still another very considerable and important Use of the *Bile* in the *Primæ Viæ*; for it proves a due and proper Stimulus to the Intestines, by means of which they are excited to their due peristaltic Motion, which is highly necessary both for pressing the Chyle into the lacteal Vessels, and continuing the Propulsion of the Feces. 'Tis certain that a due Tone of the Intestines, which consists in their proper *Systole* and *Diastole*, contributes very much to the Secretion and Expulsion of what is useless and recrementitious; for if the Excrements are not duly and regularly discharg'd, the Blood and Lymph must, by that means, not only be render'd highly impure, but also a strong Disposition to spasmodic Disorders is brought on. The *Bile* then, in its due and natural State, when pour'd into the Mass of Chyle, promotes the Discharge of the Excrements, partly by its irritating Acrimony, and partly by the elastic spirituous Quality it bestows on the Chyle.

Tho' I have already sufficiently prov'd, that the *Bile* is an excellent and useful Medicine, which preserves the Body from Disorders, and happily prevents the Tendencies and Dispositions to them; yet the uncommon Efficacy, and singular Virtue, of bitter Medicines, both in guarding against, and removing many Distempers, is a strong additional Proof of the Assertion. I have already observ'd, how great an Harmony and Affinity, in point of Mixture and Crasis, there is between the *Bile*, and the Extracts and Juices of bitter Herbs, especially of the lesser Centaury: Now daily Experience convinces us, that no Medicines are more safe and efficacious, either for preservative or curative Intentions, than those which come under the Denomination of *Bitters*. Elixir Proprietatis, and Aloes itself, reduc'd to a proper Form, with bitterish Extracts, and an Addition of the balsamic Gums, as also the Essences and Extracts of Wormwood, the lesser Centaury, Fumitory, and Gentian, are Medicines so safe and universal, both for guarding against, and curing, almost all chronic Disorders, that Medicine would be very imperfect and defective without them. Many Remedies might be discarded from Physic, without its sustaining any considerable Loss; but Bitters are absolutely necessary to its Perfection; for by these more happy Effects are in reality produc'd, than by volatile, spirituous, oleous, fix'd and earthy Salts; since they are more agreeable to the Constitution, more temperate in their Qualities, and correct and amend what is percant in a more gentle and gradual manner; provided the Use of them is persister'd in for a considerable Time. In short, Bitters must, in the very Nature of the Thing, be excellent and efficacious Remedies, since they perform the same friendly Offices with

the *Bile*, which they generate and augment, when deficient in Quantity, and correct, when deprav'd and vitiated in Quality. Nor, indeed, can we be deceiv'd with regard to the Propriety of Bitters, since provident and unerring Nature elaborates and prepares a bitter Liquor in the Body, which proves a mighty Preservative to it.

I now come to resolve this Question, *Whether the Bile circulates?* The first who advanc'd this Opinion was *Borelli*, in his Book *de Motu Animalium*; where he supposes, that the *Bile* being a highly useful Humour to our Bodies, some Ounces of it are every Hour convey'd from the *Biliary Ducts* to the Intestines; that such a Store of it could not be generated from the Blood; that the greatest Part of it was thence again pour'd into the Blood, by means of the meseraic Veins, which, like so many Leeches, sucking out the bilious Humour, convey it back again to the Liver, thro' the *Vena Portæ*; and that many of the active Particles of the *Bile*, being mix'd with the Chyle, were thence convey'd into the Blood, where they furnished new Matter for the *Bile*. This Opinion was some time ago broach'd at *Leyden*, in a formal Dissertation on the Circulation of the *Bile*. The Author of this Dissertation thinks, that, in the Space of twenty-four Hours, at least six Ounces of *Bile* were pour'd into the Duodenum, which he proves by an Experiment made on a Dog; and he is of Opinion, that such a large Quantity of *Bile* can by no means be generated in the Liver, unless we suppose a Circulation of it. But in Man, he supposes, that a whole Pound of *Bile* is secreted every Day. In Confirmation of this, he draws an Argument from the meseraic Veins, which are so large, that they are not only destin'd for conveying the Blood, but another Humour also. He afterwards endeavours to prove the same Fact from the Feces of an Embryo, which he takes to be *Bile* stagnated in the Intestines. But, because this does not answer the Quantity of *Bile* which daily flows into the Intestine, he is of Opinion, that it again enters the Pores of the meseraic Veins: These he thinks most proper for this Purpose, because, by blowing thro' a Pipe introduc'd into the meseraic Veins, the Air enters the Intestines; and that, in feather'd Animals, which are destitute of lacteal Vessels, the Chyle is carry'd thro' the Veins of the *Mesentery*.

But several Circumstances hinder us from believing these Assertions; for, in the first Place, it is not as yet proved by any conclusive and satisfactory Argument, that so large a Quantity of *Bile* is secreted in Man: But tho' we should grant, that there really was, yet I am of Opinion, that the large Quantity of Serum produc'd by so much Aliment, is sufficient to generate it; for, since an uninterrupted Heat and Motion act upon the Aliments, they must necessarily be resolv'd into saline and excrementitious Parts, of various kinds. For, tho' our Aliments should be swallow'd down insipid, and without Salt, there will be, nevertheless, daily a large Accumuation of sulphureous Salts, conspicuous in the *Bile* and Urine; and the Quantity of these Salts is owing to the intestine Commotion of the Blood alone. Since, then, the Urine contains so large a Quantity of Salt, Sulphur, Fat, and Mucus, as we daily see excern'd, and since it is furnish'd from the Blood, and not immediately from the Aliments, I see no Reason why the *Bile* should not, in like manner, receive a sufficient Supply from the Blood; so that there is no Necessity for its circulatory Motion: Nor, in Embryos, is the *Bile* generated in so large a Quantity, because the intestine Motion of their Fluids is very temperate, and already freed, as it were, from the bilious Sordes in the Viscera of their Mothers. Nor does the Largeness of the meseraic Veins add any Force to this Opinion; for the Veins of the whole Body are always larger than the Arteries; and when the Blood, carry'd thro' the Branches of the Liver, does not pass so expeditiously thro' the Ramifications of the *Vena Portæ*, it must be accumulated too largely there, and distend the Vessels. Besides, it can be proved by no Experiment, that, in Man, the meseraic Veins receive any humid Substance from the Intestines; and I cannot perceive why the *Bile* should not, in like manner, enter the Pores of the lacteal Vessels, as being more patent: much less can it be suppos'd, that the *Bile*, being mix'd with the chylous Juice, should afterwards be specifically separated by the meseraic Veins, without an Admixture of the Chyle. Besides, the *Bile* itself, mix'd in the Intestines, is in the small ones, by its Fermentation, and intimate Solution, evidently chang'd, its Crasis dissolv'd, its Bitterness laid aside, and, in short, it ceases to be real *Bile*. 'Tis not, however, to be deny'd, that the sulphureous and spirituous Parts of the *Bile*, being resolv'd by Fermentation, again pass into the Blood, but not under the Form of *Bile*. Nor do I deny, that when too much *Bile* is pour'd into the Duodenum, when the Stomach and Intestines are empty, as it sometimes happens in preternatural Cases, a Part of it may be actually received into the lacteal Veins. If it be granted, that this may happen upon taking too large a Quantity of bitter Medicines, I see no Reason why it should not happen, when too much *Bile* is accumulated.

Since I have already shewn the Necessity, and great Usefulness, of the *Bile*, and prov'd that it is an universal and natural Medicine to the Constitution, it evidently appears, that, when

this Liquor is faulty either in Quantity, Quality, or an undue Degree of Motion, our Bodies must sustain very considerable Inconveniencies, not only by having the Dispositions and Tendencies to Disorders, but the Disorders themselves, actually brought upon us. I must first then consider, whether too large a Quantity of *Bile* of a good Quality, and due Temperament, can prove disadvantageous and hurtful to the Body? To this I answer, that in Countries like ours, where the Air is dense, where the Inhabitants drink Malt Liquor, and where the Waters are not thin and subtil, a too large Quantity of good and laudable *Bile* cannot readily be generated. Yet I do not deny, but when People in the Vigour of their Youth indulge themselves wantonly in the Use of Wine, Aromatics, and sweet Aliments in the Summer Season, too large a Quantity of *Bile* descending to the Intestines, and again mixing with the Blood, may do very considerable Injuries; especially if solid Aliments are sparingly used: For 'tis sufficiently known, that the best active Medicines do Harm, if taken in too large a Quantity, which also holds with respect to Bitters: Thus also too large a Quantity of *Bile* gives too hot an Intemperies to the Blood, and disposes to Hemorrhages, disorderly and exorbitant Passions, Inflammations, Vomitings, Diarrheas, and Consumptions. But it is more frequently faulty with regard to its Deficiency, or the Smallness of its Quantity, to which old Age, Childhood, a ferous and phlegmatic Constitution, too liberal an Use of Opiates and refrigerating Medicines, frequent Venesection, reiterated Purgations, and Loss of Strength by the Shocks of some long Disease, contribute not a little. A Defect of the *Bile*, as *Helmont* has well observ'd, disposes to Cachexies, Dropsies, hypochondriacal Disorders, and very terrible chronical Distempers. *Fernelius in Patbol.* very judiciously observes, "That many have died, in whom, when laid open, no other Cause of Death could be discover'd, except that the Gall-bladder was entirely destitute of *Bile*." And *Moebius* in his *Fundament. Physiol.* informs us, that in the Bodies of three Children, who died of Consumptions, there were not the least Remains of *Bile* to be observ'd. In the 224th Observation of Dec. 2. of the *Miscellanea Naturæ Cur.* 'tis shewn, that the Person who by frequent Vomitings of *Bile* drains his Body of that Fluid, must necessarily die.

A due Supply of *Bile* is greatly wanting in the Intestines, when the Orifice of the *Ductus Choleochus* is either block'd up by a Stone, or contracted by Spasms. This Disorder lays a Foundation for several very terrible Symptoms, and generally ends in a Jaundice; for when the *Bile* is not allow'd a Passage to the Intestines, and its Generation in the Liver is still carried on, it must of Necessity flow impetuously, not only to the Gall-bladder, which it wonderfully distends, but also to the biliary Duets, and Glands of the Liver, where, by the too great Distension and Aperture of the Pores, it passes thro' the lymphatic Vessels into the Blood, and tinges the whole Mass of Serum with that yellow and disagreeable Colour, which appears all over the Surface of the Body. But that, in this Case, a large Quantity of *Bile* flows from the Liver into the Blood, we may conclude from this, that the Urine discharg'd is thick, resembles *Bile* in its Colour, and tinges Linen with a saffron Colour. Costiveness is also a Concomitant of the Jaundice, and white Feces are discharg'd with Gripes and Flatulencies; there is a heavy Pain in the right Hypochondrium, and sometimes a very acute and violent one, a Vomiting, Nausea, Loss of Appetite, and Cardialgia, especially if a Stone be lodged in the Duets, or if the *Bile* be extravasated; for I have already observ'd, that the biliary Duets are very sensible and nervous. If then these Duets should be too much distended or vellicated, either by a Stone, or flagging *Bile*; the Stomach, the Oesophagus, and the Duodenum, are at the same time drawn into Consent with them. More Circumstances concur to prove, that the biliary Duets, and its Aperture into the Duodenum, may be contracted; and that by this very means a Jaundice, which however is easily carried off, is generated. In hypochondriac and hysterical Patients, as also in those who labour under a violent Colic, or a severe Fit of Anger, we often find a yellow Colour dispersed over all the Body, accompanied with a heavy Pain in the Pit of the Stomach, towards the right Hypochondrium, and where the Duodenum, the Pylorus, and these Duets, lie; for the Orifice being either closed up by Flatulences, or contracted by Spasms, the *Bile* regurgitates to the Blood. Antispasmodic Carminative Medicines, and such as correct the Acrimony of the Humours, are of all others best calculated for the Removal of this Disorder. Hence, according to the Experiments of *Sylvius*, Saffron, Opiates, Milk, and Emulsions of Hempseed, are of singular Service in this Case; but hot Sudorifics, as also stimulating and operient Medicines, are less proper. Burning bilious Fevers, and tertian Fevers, whether of the continued or intermitting Kind, are also frequently accompanied with a Jaundice, which draws its Origin from no other Source, than either a Constriction or Obstruction of the biliary Duets, which lead to the Duodenum. In burning Fevers an Inflammation of the Duodenum, and of that Part of the

Pancreas which adheres to it, as also of the Pylorus, often happens, especially when the Fever is brought on by the Suppression of violent Grief, or the drinking of cold Liquors. Hence it is not to be doubted, but the Duets being compressed by means of the Inflammation, Tumor, Pain, and Spasms of this Part, prevent the Afflux of the *Bile* to the Duodenum. Besides, 'tis known from Experience, that Poisons swallow'd, and the Bites of Vipers, or of mad Dogs, are frequently follow'd by the Jaundice; the Reason of which Phenomenon seems to be no other than the violent Spasms and Inflammation in the Stomach, and small Intestines, which at the same time shut up the Passages of the *Bile* to the Intestines.

When there is a violent Obstruction of the biliary Duets, the Gall-bladder is on that Occasion surprisingly distended by too large an Influx of the *Bile*. Then, by reason of the Stagnation and Rest, the more thick and mucous Parts of the *Bile* are separated, collected, and lay a Foundation for a bilious Concretion. Besides, the thinner and more acid Parts of the *Bile* issue thro' the dilated Pores of the Gall-bladder, and excite Gripes, Cardialgias, Vomitings, violent Constrictions of the Stomach and Intestines, and Convulsions. Instances of this may be read in the *forty-seventh Observation of the first Century of Stalpart Vander Wiech*. That the *Bile* may issue from the Gall-bladder, is confirm'd by *Tulpius*, where he brings an Instance of a pregnant Woman, in whose Body when laid open, besides an Abscess of the Mesentery broken during Labour, the Colon was found to float so freely in yellow *Bile*, that it might have been taken out by Spoonfuls. Something of a like Nature, *D. Alth. Fribe Ephem. Nat. Curios. German. Dec. an. 3. Oly. 105.* relates concerning a Coachman who died of a continual burning Fever, in whose Body, when laid open, he says he observ'd, that from the Gall-bladder as yet entire, and larger than a Pigeon's Egg, the thinner Part of the *Bile* had issu'd, and so drench'd and corroded the Parts below, above, and on every Side of it, tinging them of a saffron Colour, for two or three Inches all around, that it was plain the Parts bedew'd and ting'd with it had become manifestly putrid; and that, besides the Substance of the Liver, it had corroded and render'd putrid a great Part of the Hypochondrium, the Gall-bladder remaining, at the same time, evidently sound and unaffected.

Besides, the *Bile* is highly disturbed in its Motion, either when the Gall-bladder is filled with a Mucus, or when a Stone is lodg'd in its Neck; for in these Cases it cannot receive the hepatic *Bile*, which, of course, must flow into the Duodenum in a larger Quantity than it ought; and is by no means necessary, if the Stomach is empty. And if it is full, this *Bile* is by no means sufficient; but a Supply of thicker and better saturated *Bile* from the Gall-bladder is necessary for the Purposes of Chylification, and for exalting the *Chyle*. And such a Defect of *Bile*, at the Time of Meals, generates many acid and viscid Crudities, which dispose to Gripes, Constrictions of the Belly, Cachexies, and Dropsies. I remember there was some time ago a Sword-cutler laid open at *Yema*, who, for twenty Years before his Death, had been afflicted with violent Gripes, a Cardialgia, and Sense of Heat about the Pit of his Stomach. His Gall-bladder was of an uncommon Structure, and so large and long, that three thousand six hundred and forty-six Grains of *Bile* coagulated partly in the Form of Peas, and partly in that of Shot, were found in it. Cases of this Nature are very frequently accompanied with Pain of the right Hypochondrium, Vomitings, Jaundice, Colics, Hysterical and Spasmodic Disorder. And that a Dropsy frequently ensues such a Repletion of the Gall-bladder with a Stone, is confirm'd by *Creselius, M. N. G. Dec. 1. an. 3. Oly. 260.* *Georgius Fracas* also, *Dec. 2. an. 6. Oly. 194.* from the Observation of another Physician, gives the Case of a certain Soldier, who died of a Dropsy in his Breast, in whose Gall bladder, upon opening him, there was a Stone found, which weigh'd half an Ounce and half a Dram. The Patient, during his Indisposition, complain'd of so violent a Pain in the Region of his Liver, that he could neither stand upright, nor walk, but was oblig'd till his Death to sit in his Bed in a crooked or bending Posture.

It sometimes also happens, that the *Bile* is irregularly, preternaturally, and in too large a Quantity, thrown out of the Duets of the Liver into the Intestine; upon which Occasion, especially if it offends in Quality at the same time, it creates many Disorders, and produces very terrible Symptoms. This Case principally happens after a severe Fit of Anger; for then the muscular Fibres of the Gall-bladder, and biliary Duets, being violently convulsed, not only a Bitterness in the Mouth, Nausea, and Loss of Appetite, and Cardialgias, but also Vomitings or Gripes, and a bilious Diarrhea, are excited. On this Occasion we are to observe, that where the *Bile* immediately discharg'd, the Case is void of Danger. But if the Anger has been suppressed and restrained, it often happens, that the apitated *Bile*, remaining in the Cavities of the Intestine, is not discharg'd, but reaches the Mass of Blood, and generally excites

cite, Fevers, violent Convulsions, Spasms and Pains. But, in this Case, the greatest Injury is done to the Constitution, when hot Sederifics, or volatile spirituous Substances, are used, since by this means the impure *Bile* is plentifully convey'd to the Mass of Blood, and nervous Parts, and excites the most dangerous Symptoms. Concerning this, *Hippocrates* has left us a beautiful Passage in his Book *De Veteri Medicina*. "When," says he, a certain bitter Liquor, which we call yellow *Bile*, is diffused, what Anxieties, fervent Heats, and Weaknesses, forthwith seize the Patient! But when we are freed or purg'd of the Excess of this Liquor in due Time, either spontaneously, or by means of proper Medicines, then both the Pain, and intense Heat, are manifestly remov'd. But when by Length of Time this Liquor is become crude, intemperate, and elevated above its natural State, neither the Fever nor Pains can be allayed by all the Suggestions of Art. And indeed what Madness, what Despair, what Gnawings of the Viscera and Breast, are those afflicted with, who abound too much with a stimulating, acid and æruginous *Bile*!" *Hippocrates* very justly observes, that these Effects are only produced by an intemperate *Bile*; for if a temperate *Bile* is by a Fit of Anger thrown into the Intestine in too large a Quantity, it does not prove so hurtful, but rather a Remedy in cold Constitutions, as *Hippocrates* in a great many Passages observes.

I shall now inquire what Disorders may possibly arise from a tainted and perverted *Bile* convey'd into the Mass of Blood. Among these we may justly and principally reckon those Fevers called bilious, and continual double Tertian Fevers. And tho' Fevers themselves generate *Bile*, yet it is not to be doubted, but they may also arise, or be produced, from a bad and peccant *Bile*. *Hippocrates* concurs with me in this Opinion, who, in his Book *De Natura Hominis*, informs us, that most Fevers, especially a continual Quotidian, Tertian and Quartan, arise from the *Bile*. For, first, 'tis not to be doubted, and indeed we have the Sense of Antiquity full on our Side, that the proper Seat and Origin of most Fevers, especially those of the intermittent and burning Kinds, and such as are called *choleric*, is in the first Region of the Body, that is, about the Præcordia, the small Intestines, the Cavities of the Liver, the Spleen, the Pancreas, and the Omentum; for, as in these Organs the Circulation is generally slow, Impurities are generated, and corrupt acid Humours flow from the Pancreas into the Intestines, and generally excite not only the spasmodic and feverish Symptoms which accompany hypochondriacal Disorders, but also the above-mentioned Fevers. For the Symptoms, which generally attend these Fevers, for the most part, make their first Appearance in the first Region of the Body, as evidently appears from the Inflation of the Stomach and Abdomen; the Pain of the Back, the Nausea, the Vomiting, and the Constipation of the Belly. And because, when any highly sensible Part of the Body is affected with Spasms, all the other Parts are readily drawn into Consent with it, hence the Horror, the Rigor on the Surface of the Body, the Coldness, the convulsive Pains of the external Parts, and Pandiculations, draw their Origin from the Irritation of the *Primæ Viæ*. Besides, the Diarrheas, the bilious Vomitings, the reddish high-colour'd Urine, the insatiable Thirst, the intense Heat, the violent Coughs, the Erosion of the Fauces, as also the Relief afforded by Refrigerants, gentle Evacuants, and such Preparations of Nitre as correct and allay the Acrimony of the *Bile*, and, on the contrary, the Mischiefs produc'd by volatile, hot, oily, and acid Medicines, are Circumstances which manifestly declare, that a corrupted *Bile* is lodged in the *Primæ Viæ*, and Mass of Blood; and consequently fully prove my Assertion. Besides, we may observe, that young People, who have bilious Constitutions, and are prone to Anger, are easily thrown into Fevers; and that such as have formerly labour'd under critical bilious Diarrheas, if these do not return the following Year, are in their Head seized with tertian Fevers, accompanied with a pungent Pain, and Gnawing of the Stomach, which cease when plentiful Discharges of a yellow bilious Matter by Vomit and Stool come on.

Among many others, there is a beautiful Passage of *Hippocrates* in Confirmation of my Opinion, in his Book *de Affectionibus*. "Where," says he, there is a Fever, the Patient has "an insatiable Thirst, a rough and black Tongue, and a bilious Colour; his Spit is bilious; he is cold externally, but pretty hot internally. Refrigerants are proper in this Case, and the Disorder proceeds from agitated *Bile* pent up in the Body."

Fevers of this kind generally terminate on the seventh Day; nor does the Method, in which these Fevers terminate, less confirm my Opinion; for they generally terminate on the seventh Day, by a critical Jaundice, without any Sense of Heaviness, Tension, or Pain, in the Right Hypochondrium, especially in Patients labouring under continual tertian Fevers. *Hippocrates*, in his Book *de Morbis*, justly observes, that it conduces very much to the Relief and Safety of feverish Patients, and

such as abound with *Bile*, to have the *Bile* evacuated in due Time.

The Antients, and particularly *Hippocrates*, as also, among the latter Physicians, *Fernelius*, assign the Putrefaction of the *Bile* as the Reason why Fevers are augmented. Accordingly, the last-mention'd Author, in his *Patholog. de Febris*, has these Words: "In Fevers the *Bile*, becoming putrid, acquires "a malignant Quality; and that in the Beginning of the Access, it rushes violently, and in large Quantities, into the Membranes of the Duodenum, is sufficiently proved from the dry Cough, the Oscitation, the Suffocation, the Anxiety, the Distension of the Præcordia, the Pain, the Nausea, the Vomiting, and the white thin Urine."

And indeed 'tis certain, that the *Bile*, when in a State of Rest and Stagnation, very easily becomes putrid. Now nothing is more injurious to the human Constitution, nothing more impairs its Strength and Vigour, nothing more disturbs and perverts its natural Motions, than corrupt and putrid Substances. For which Reason, we justly deduce the Origin of violent Fevers in cachectic and phlegmatic Patients, from a large Quantity of corrupted *Bile* in the *Primæ Viæ*. Besides, if putrid *Bile* is lodged in the *Primæ Viæ*, it easily admits, multiplies, and renders active, the Contagion of the Plague, malignant and petechial Fevers, Small-pox, Measles, Dysenteries, and other contagious Diseases. Hence those Medicines which either by Vomit or Stool discharge the Sordes from the *Primæ Viæ*, such as the *Acidule*, purging Flux, Nitre, Spirit of Vitriol, Spiritus Vitrioli dulcis, and Elixir Proprietatis prepared with a proper Acid, prove excellent Preservatives against Contagion, and malignant Distempers. Nay farther, an impure *Bile*, generated afresh in a considerable Quantity, lays a new Foundation for the Paroxysms of intermittent Fevers. Hence the Reason is obvious, why Evacuants, which operate without inducing Spasms, and do not injure the Tone of the Intestines, such as the *Pilule amaræ*, neutral Salts exhibited in large Doses, Mercurius dulcis, as also those Medicines which correct the too great Acrimony of the *Bile*, such as Preparations of Nitre, and those which prevent its Corruption, such as bitter earthy Substances, and *Peruvian Bark*, and such as strengthen the Tone of the nervous Parts, in order to prevent spasmodic Contractions in them, are of all others best calculated for removing the Cause and Origin of intermittent Fevers.

I now come to consider a Phenomenon of the highest Importance in the Practice of Physic, which is, that, in all feverish Disorders, the *Bile* is not only plentifully generated, but also vicious and peccant, by reason of the Dyscrasy of the Humours, and the disorderly Circulation of the Blood. Now this *Bile* necessarily flows into the Intestines, and, if it is not evacuated, lodges in them, and passes into the lacteal Vessels, and the Blood itself, by which means the most terrible Disorders are produced. For which Reason in all Fevers a soluble Belly, whether 'tis so naturally, or made so by Medicines, is a highly lucky and salutary Circumstance (*a most excellent Remark*!) Hence when Fevers of this kind are accompanied with Costiveness, we generally observe, that purple Fevers, Aphthæ, Inflammations of the Mouth and Fauces, and exanthematous Eruptions of various kinds, appear; the Reason of which is no other than this, that the corrupt and bilious Humours generated during the preternatural and febrile Commotion of the Blood, coming into the Blood itself, are thrown out to the Surface of the Body. I must on this Occasion observe, that the Purples, which appear principally in the Summer, and generally seize People whose Fluids are impure, as those of pregnant Women, and scorbutic Constitutions, for the most part are, and which often appear on the seventh or ninth Day of many acute Fevers, arise principally from bilious Humours fluctuating in the *Primæ Viæ*. For this Reason all Medicines which correct Acrimony, and evacuate gently, not only guard against, but also remove the Purples, especially if gentle Diaphoretics, in Conjunction with proper Acids, are now-and-then duly interposed. Women in Child-bed are frequently seized with a purple Fever, which arises from the Lochia not being discharg'd, and the *Primæ Viæ* evacuated; and this Species of the Disorder, if not judiciously treated, proves mortal.

I now come to consider some other Distempers, whose Origin is properly deduced from a Fault in the *Bile*; and the first I shall mention is the Erysipelas, especially if the Patient is costive, and Transpiration is obstructed; for nothing more corrupts the *Bile*, or more effectually stores it with impure and caustic Salts, than an Obstruction and Suppression of the usual cutaneous Evacuations. When, then, a *Bile* of this caustic Quality is lodged in the *Primæ Viæ*, it excites Horrors, Anxieties, and Vomitings; and being afterwards received into the Blood, is generally thrown off the third Day by the febrile Motion. Arthritic Pains, which, according to the Antients, draw their Origin from a hot Cause, are in like manner principally produced by a Fault in the *Primæ Viæ*, arising from a vitiated

vitiated *Bile*, which being convey'd into the Blood, proves the Cause of all these Pains, whilst the caustic Salts with which the *Bile* is impregnated, are fix'd upon the Membranes of the Joints. And this is the Reason why Fits of the Gout are for the most part usher'd in by Pains of the Stomach, Anxieties, Nauseas, and Loss of Appetite. Hence the Person who knows how, on these Occasions, to evacuate the *Primæ Viæ* without raising tumultuous Commotions in the animal Oeconomy, and at the same time to correct the Acrimony of the Humours, is the likeliest to succeed in removing, or at least mitigating, arthritic Pains.

It also deserves our greatest Attention, that Hæmorrhages, which either happen at stated Periods, or such as are critical and symptomatical in Diseases, have their chief Cause and Origin in the *Primæ Viæ*: For in these, Flatulences, Coarctations, and Constrictions, are perceiv'd; a heavy depressing Pain is felt in the Hypochondria and Back, the Patient is costive, the extreme Parts are cold, and the Impetus of the Blood is afterwards directed to some particular Part of the Body, whether the Head or Lungs, the Anus or the Uterus. But the Medicines which are best calculated for allaying and restraining the Violence of the Flux, are those which are gently purgative, but which, at the same time, preserve the Tone of the Intestines, and render the *Bile* temperate and balsamic; such as Preparations of Rhubarb, the Pilule Becherianæ, the Pilule Macrocostinæ, my balsamic bitter Elixir corrected, and volatile oily Salts frequently exhibited, but in small Doses; but for correcting the Acrimony and Volatility of the caustic and corrosive *Bile*, Preparations of Nitre, and the precipitating Powders, as they are sometimes call'd, are of all others the most effectual.

Can it now be doubted, whether from these Circumstances we may not justly conclude, that a vitiated *Bile*, accumulated in the *Primæ Viæ*, proves an Occasion and Stimulus to Hæmorrhages, in Constitutions disposed to them, by the preceding Spasms of the *Primæ Viæ*? And on this Occasion it must be observed, that periodical and stated Evacuations of Blood, as also arthritic and catarrhus Disorders, appear for the most part in the Autumn or Spring, or about the Months of *October* and *March*; for which no other Reason can be assign'd, than that the equable Tone of the Fibres is at these Seasons lost, in Consequence of the Inequalities in the State of the Atmosphere and Weather; and thus the Equilibrium of the Fluids and Solids, in which Health consists, is destroy'd; and that at these Times the active excrementitious Salts, which ought to be carried off by Transpiration, pass principally into the *Bile*, where, with their united Force, they descend to the Intestines, and produce numberless Disorders.

But 'tis particularly to be adverted to, that by the Corruption, Acrimony, and corrosive Quality of the *Bile*, in Consequence of an Admixture of many stimulating heterogeneous and corrosive Parts, violent Defluxions are excited in the Intestines themselves; for hence arise Diarrheas, Choleras, violent Vomitings, Gripes, and Dysenteries. The Antients, as well as the Moderns, ascribe these Disorders to an æruginous, porraceous *Bile*, which preternatural Colour sufficiently manifests, that its due Crasis and natural State are destroy'd by an Admixture of some corrosive Acid; for 'tis certain, that the *Bile* acquires a greenish Colour by the Addition of an Acid; and green Fæces in Children are manifest Proofs, that there is a large Quantity of Acid generated from the Milk they suck; for by Acids the natural Colour is destroy'd, and a Disease is brought on. *Hippocrates*, in his Book *de Natura Hominis*, has long ago condemn'd a greenish-colour'd *Bile*, in the following Words: "Green *Bile* stagnating near the Liver, where 'tis always in an Ebullition, is the Cause of Corruption, and a troublesome Inmate." Besides, practical and anatomical Observations sufficiently confirm, that a green *Bile* is the Cause of the above-mentioned Disorders: Thus *Diemerbroeck* affirms, that upon opening the Body of a Patient who died of a violent bilious Diarrhea, in which the Excrements were green, he found the Gall-bladder filled with a deep-green *Bile*, and distended to the Bulk of a Hen's Egg. The same Author informs us, that, in the Hospital in which he was concern'd, the *Bile* lodg'd in the Gall-bladders of some of the Patients, was, upon their being dissected, found highly green, æruginous, and of a somewhat blackish Cast; nay, in a young Daughter of Mr. *Ulyches*, who died of a Flux, in which the Excrements were æruginous, and who was laid open by myself in the Presence of several Physicians, I found the Gall-bladder distended to the Bulk of a Hen's Egg, and fill'd with æruginous *Bile*; which Circumstance I have also observed in other Children who have died of a like Diarrhea, and in some to whose Lives the Cholera Morbus has put a Period. *Pechlinus*, in his *Exercitatio de Purgantibus*, affirms, that he has often found the hepatic *Bile* black and livid, or of a leaden Colour. In a young Student of Distinction, and of a melancholic Habit, I observed the *Bile* in the Gall-bladder thick and black, like that of a Fish; which Circumstance I also remember to have seen in a *Maniac*, who after his Death was laid open. By *Bontius de Medicina Indorum* we are inform'd, that in an asthmatic Boy, who died

of a Dysentery, the Gall-bladder was found stuffed with a blackish Humour; and this black Colour is to be ascribed to no other Cause than the large Quantity of an Acid, which, by inducing a Stagnation of the *Bile*, renders it in Process of Time black. The Reason is therefore obvious, why in the above-mentioned Diseases, and in their Beginnings especially, gentle Emetics, Rhubarb; as also the precipitating nitrous Powders, Milk, Whey, Oil of sweet Almonds, anodyne and emollient Clysters, and the Cremor of Pissin, of all other Medicines prove the most effectual; for the *Bile*, when rendered highly acrid and caustic, excites Symptoms like those produced by Poison. *Borrichius* in *Art. Med. Haffn. Tom. 3. Obs. 36.* gives us the Case of a Youth afflicted with the same Symptoms which are generally produced by Poison, for an Erosion of his Stomach by an highly acrid *Bile* ensued. The same Author writes, that not only the *Bile*, but other Humours affect the Body and Stomach in such a manner, that one would be induc'd to think the Patient had taken a Dose of Poison, in which Case they undoubtedly acquire a malignant Quality, by which they corrode and vellicate the Membranes, and other sensible Parts, in the most violent manner, and excite the most intolerable and rack-ing Pains. For a Proof that the *Bile* may become so corrosive as to raise an Ebullition like *Aqua-fortis*, when thrown upon the Earth, see *Borelli, Observat. 1. Cent. 2.*

From what has been said, I think it plainly appears, that the *Bile*, when in its natural State, both as to Quantity and Quality, is a Medicine, and an Humour of the highest Use and Importance to the Body, and a Poison when vitiated; and that consequently the Health of Man may either be preserved or destroyed by the *Bile*; and that for this very Reason, both in accounting for the Symptoms of Diseases, taking our Indications, and prescribing the Means of Relief, we are in a particular manner to advert to the State and Condition of this Humour; and carefully observe whether it is faulty, either with regard to its Quantity, its Quality, and the Degree of its Motion; for certainly many Medicines, which are very efficacious in the Cure of Diseases, operate no otherwise than by increasing the Quantity of *Bile* when deficient, evacuating it when redundant and superfluous, correcting it when vitiated, and preserving its Motion to the Intestines in its due and proper State; for few Medicines act directly and immediately upon the Blood and Humours, but most of them exert their Virtues and Efficacy upon the *Primæ Viæ*, where, in a secondary manner, they correct the vitious Humours, of which the *Bile* is the principal, which are the direct and formal Causes of Diseases. This Observation holds good in a particular manner with regard to Emetics, Laxatives, Absorbents, Acids, Preparations of Nitre, temperating Medicines, Emollients, Bitters, fix'd Salts, Chalybeates, Corroboratives, and others of a like Nature. *Hoffman*.

The above-quoted Author, in another Part of his Works, makes the ensuing Remarks relative to the *Bile* and its Organs.

The Blood is conveyed to the Liver by the *Vena Portæ*, which being a venous Vessel, the Motion of the Blood through it must of course be slow. The *Vena Cava* carries back the Blood to the Heart. The hepatic Artery conveys Nourishment to the Parts of which the Liver is composed; and the biliary Duets carry the secreted *Bile* partly through the *Ductus Cholo-dochus* to the Duodenum, and partly through the *Cystic Duct* to the Gall-bladder; for indeed the only Use and Design of the Liver is to separate the sulphureous, torrefied, and lixivial Parts of the Blood and Serum convey'd to it through the *Vena Portæ*; so that the Antients were mistaken when they believ'd, that the Liver was the principal Laboratory of Sanguification.

The *Bile*, which is a thick Humour, and heavier than the Blood itself, requires a mechanical Apparatus of a particular Kind, for its Secretion.

For the Secretion of a thick Humour, 'tis necessary that the Blood flowing into the secretory Organ should be thick, that a fine Liquid may not pass in too large a Quantity through its capacious Duets.

As the Separation of thick Humours requires pretty large Canals and Duets; and as a thin Liquid passes through these with the same, and even greater Ease, than a thick one; hence, lest too thin a Lymph should be secreted, it was necessary that the Blood should in a great measure be previously deprived of its thin lymphatic Part, which is done in the Kidneys, the Stomach, the whole intestinal Tube, the Omentum, and Pancreas, through all which Parts the Blood must necessarily pass before it reaches the Liver.

That the *Bile* may be secreted in the Liver, 'tis requisite that its Motion and Progress through that Organ should be slow.

For in general all the Secretions and Excretions are more advantageously carried on by a slow than an accelerated and rapid Motion; because, during the former, the fluid Parts are more easily separated from those which are more thick and solid, and the fine aqueous Parts are carried into the lymphatic Vessels, of which there is a great Number in the Liver; and those that are thicker are convey'd through the biliary Duets.

In order to form a clear Idea of the Separation of the thick bilious Humour, we must carefully attend to the singular Structure of the Vena Cava, and its Connexion with the Vena Portæ, since in these there is a peculiar Kind of Mechanism, not to be observed in any other Parts of the Body.

For though in other Parts the Extremities of the Arteries are joined to those of the Veins, and form one continued Canal; yet this does not happen in the Liver; for the minute Ramifications of the Vena Cava are inserted into the Sides of the Vena Portæ in such a manner, as to form right Angles with them; for no other Reason, than that the Blood, which is thinner than the Bile, may be forced into the Orifices of the Vena Cava, just as the Chyle is into the Intestines, after it has left the thick Bile, which is then convey'd into the *biliary Duëts*, adjacent to the Vena Portæ, and thence forced through the Duëtus Cholodochus, and Communis, to the Duodenum, and through the Duëtus Cysticus to the Gall-bladder.

Though the Bile, in Consequence of the Ingredients of which it is composed, is an Humour disagreeable both to the solid and fluid Parts of the human Body, and in this Sense excrementitious, yet, with regard to the Elaboration of the Chyle, 'tis highly useful and necessary, and consequently ought not to be discharged from the Body, till it has exerted itself to that Purpose.

The Expansion of the Stomach by means of the Aliments, and the Fermentation they undergo in it, very much assist the Conveyance of the Bile from the Gall-bladder to the Duodenum.

The Situation of the human Gall-bladder is very remarkable, since its Neck is higher than its Bottom; for which Reason the Ascent of the Bile is very difficult, especially since it must flow from a wide to a narrower Place. Then again, because the Duëtus Cholodochus passes a long Way between the second and third Coats of the Duodenum, and at last opens with a round Orifice into its Cavity, the Bile cannot at all times be discharged into the Duodenum, but only when the Intestines are relaxed, and the Gall-bladder compress'd by the right Side of the Stomach, when rendered turgid by the Quantity and Fermentation of the Aliments.

The larger the Quantity of Aliments taken into the Stomach is, the more it must be expanded, and consequently the greater the Compression of the adjacent Gall-bladder must necessarily be; for which Reason the Bile must on these Occasions flow plentifully to the Intestines.

It is a Circumstance deserving our Attention, that in Animals whose Stomachs are become flaccid by long Fasting, the Gall-bladder is turgid and distended, whereas, after they have taken a large Quantity of Aliments, it is observed to be only half-full. It is also remarkable, that in human Fetuses the Gall-bladder is found distended with Bile, because in them the Stomach is collapsed, and free from Expansion. *Hoffman*.

There are some farther Circumstances relative to the Bile, of too much Importance to be omitted.

The Bile, when out of the Body, is highly bitter, and the most acrid of all the animal Fluids; it is neither of an alkaline, nor an acid Quality. It resists Acefcence, and conveys the same Quality to other Substances with which it is mixed. It tends very much to Putrefaction, which it promotes, when added to other Substances disposed to it. It very soon mixes with Water; and when inspissated over a gentle Fire, it dissolves, if exposed to the Air. It does not burn in the Fire, unless it be previously dry'd. It renders Oils, and oleaginous Substances, miscible with Water. If it is rubb'd with any tenacious Substances, such as Resins and Gums, it resolves and attenuates them. It is coagulated by Fire, Alcohol of Wine, acid Spirits, and Extract of Galls: See *Becheræ Chym. Vol. 1. P. 343, 732, 736, 842.* and his *Institut. Med. Sect. 99.* I shall now take a brief Survey of the several Experiments which the Curious have made on the Bile of various Animals. When the Bile, then, of an Ox was put into different Vessels, and mixed with various Liquors, in order to discover what Changes they produced, either in its Consistence or Colour, it was found to hold universally, that Spirit of Sal Ammoniac produced no Coagulation in it, tartarated Spirit of Wine a very small one, pure Spirit of Wine a somewhat greater in some Parts of the bile, and Oil of Tartar per Deliquium none at all. Spirit of Vinogar, and Vinegar itself, produced large and fibrous Concretions in it. Spirit of Verdegrise and Sulphur, Oil of Vitriol, Spirit of the Butter of Antimony, Spirit of Honey, and Extract of Galls prepared with common Water, produced a very firm Coagulum in the Bile; but Spirit of Nitre a very small one, and Aqua-fortis but a moderate one. The express'd Juices of Monkshood or Hemlock produced no Coagulum in it; and a Mixture of the Juices of Deadly Nightshade, Onion, Horseradish, and Vipers-grass, produced a very small Coagulum with it. No Condensation or Change at all was produced in it by the Juices of Tansey, Sage, Mint, Masterwort, Angelica, Lavender, and Baum; but a small Condensation and Change were produc'd in it by the Juices of Succory, Smallage, Bistort, Mugwort, and Pilewort. When all these Liquors were mix'd with the Bile, and kept till the next Day, whatever Concre-

tions were produc'd were fibrous and light; for they floated in the Liquor, and contained nothing solid: But the Parts not condens'd were serous like Whey, or the Serum of the Blood. Besides these coagulated and serous Parts, some pinguious Portions adher'd to the Sides of the Vessels. The Concretions produced by Spirit of Nitre, or Aqua-fortis, were alone not fibrous, but divided into Grumes and Froth. The Coagulum produced by the Extract of Galls seem'd to be the firmest of all, and almost free from all Serosity, which being condens'd separately, assum'd the Consistence of a Jelly. *Du Hamel Hist.*

Ox's Gall mixed with Powder of Alum, by shaking them gently together, excited a perceptible Effervescence. The Mixture became turbid, but the Colour of the Bile remain'd the same it was before, and a Precipitation was insensibly made. If this Mixture is exposed to the Rays of the Sun, the Liquor becomes clear, and assumes a reddish Colour. If five or six Days after this the floating Sordes and the Sediment are separated, and the clear Liquor again exposed to the Heat of the Sun for three or four Months in a close-stopp'd Phial, it deposits still another Sediment, and gradually exhibits on its Surface a white, hard, and sebaceous Fat; but the Liquor itself assumes a yellow citron Colour, and a Smell resembling that of boiled Crabs. To one Pound of the Bile there was half an Ounce of Alum added, and the Quantity of the Matter precipitated exceeded that of the Alum; which is an evident Proof, that some Part of the Bile, that is, its earthy Portion, had been carried to the Bottom of the Vessel along with the Alum; but we may reasonably conclude, that the Fat floating on the Top was separated from the Bile. *Hornberg* has described this Experiment, and at the same time taught us a Method of preparing a Medicine from it, when it is freed from its earthy and pinguious Parts, by being exposed to the Heat of the Sun for at least two or three Months. The Design of the Medicine is to remove those Blemishes in the Face, especially the Nose, which arise from a thick and unctuous Matter collected and treasured up in the cutaneous Duëts; and which, when express'd, are of the Form of a Worm, and become black in the Air. The Method of preparing this Medicine is as follows:

Mix half a Dram of Bile prepared as above, with an equal Quantity of Oil of Tartar per Deliquium; then adding an Ounce of River-water, keep it for Use in a close-stopt Phial.

The Method of applying it is to dip the Point of the Finger in it, and anoint the Part affected seven or eight times a Day. *Mem. Ac. R. Sc. A. 1709.*

I shall now mention some of the Experiments try'd on the Bile of an Ox by *Baglioi*.

Ox-gall then, upon the Admixture of Oil of Tartar per Deliquium, was concreted into a kind of fibrous Coagulum with a Froth, but its Colour remain'd unchang'd. The Bile of an Ox, upon an Admixture of Mercury sublimatè, was forthwith coagulated, and assum'd an obscure greenish Colour, which daily increased. Ox-gall, mixed with Spirit of Vitriol, first produced a great Froth, and then coagulated into a greenish Mass, the Acidity and Greenness remaining unchanged. Twenty-four Hours after there was a green thick Sediment found in the Bottom of the Vessel, but the Taste of the Liquor remained the same. The Bile of a Calf newly kill'd immediately quitted its yellow Colour, and became green by the Admixture of Oil of Vitriol, and retained that Colour for three Days: It was render'd less green by Spirit of Nitre. With Oil of Tartar the same Bile was in a great measure coagulated into white Clots, which floated up-and-down in the rest of the Liquor. *Bagliv.*

Six Pounds of Ox-gall upon Distillation, yielded almost eighty Ounces of Liquor, three Ounces and two Drams of Oil, twenty-four Drams of volatile Salt, and five Drams of fixed Salt. *Hist. Ac. R. Sc.*

Hartman made the Analysis of Ox-gall in two different manners: And, first, for Distillation from a Retort, he took nine Ounces and five Drams of Bile, and having mixed them with Sand, he put the Whole into a Retort; and first of all seven Ounces of a watery-coloured Phlegm were yielded; after this there succeeded another Phlegm of a milky Colour, mixed with an Oil, which, taken together, amounted to two Ounces and three Drams. This Oil was of two Kinds; for one Part of it floated on the milky Phlegm, and another subsided to the Bottom of the Vessel: But after some Weeks the greater Part of that which floated on the Top fell to the Bottom, at which time it was observed to assume a Lentor, not unlike that of Pitch. The Form of a volatile Salt was not to be discovered, tho' the Smell of it struck the Nostrils. From the Caput Mortuum calcin'd, seven Grains of a fixed Salt were procur'd. A dusky, black, and almost insipid Matter, without the least Degree of Tenacity, adher'd to the Neck of the Retort. The Distillation of Ox-gall by the Alembic, he managed in this manner: First he took one Pound three Ounces and two Drams of the Gall.

The Phlegm yielded by this was all of one Colour, that is, an aqueous one; and it diffused a sulphureous saline Smell, resembling that of the milky Phlegm yielded by the Retort.

Nor was the Phlegm of any other Smell which was distilled afterwards with the Oil, and which was not of a milky Colour, but rather resembling that of Fire, when the rest of the Mass appear'd thick and black in the Alembic.

The Weight of this Oil and Phlegm together amounted to an Ounce and an half: But 'tis something remarkable, that the Oil yielded by this Distillation was not like that yielded by the Retort of two Kinds; for it constantly floated on the Surface of the Phlegm, and retain'd the Form of a fluid Oil.

There was no resinous Colophony, but a dusky black Caput Mortuum remain'd.

Volatile Salt, which would have adher'd to the Alembic, in its proper Form, and shewn its pure saline Spicula, did not at all appear.

One Dram and thirteen Grains of fix'd Salt were procured from the Caput Mortuum. *Burggrav. Lex.*

Baglivi makes the following Experiments on Sheeps Gall. I divided, says he, Sheeps Gall into several Cups one Morning, when the Weather was rainy. Its ungrateful, and, as it were, urinous and putrid Smell irritated my Throat, and created a small Pain in my Head. The *Bile* itself was transparent, and of a Colour resembling that of Tobacco. The Fingers which were employ'd in handling it were clean and white, and the Skin somewhat corrugated, just as when we wash our Hands with Soap.

I. The *Bile*, mixed with rectified Spirit of Wine, produced no Fermentation whilst the Substances were mixing. Twenty-four Hours after, it was of a brownish Colour. In the transparent brownish Liquor, white small Filaments floated confusedly; and at the Bottom of the Vessel there was a farinaceous Sediment. The Bitterness was the same, or rather somewhat increased. On the third Day it was the same. By the Addition of common Water the brownish Colour became somewhat more clear. On the twelfth Day the Smell was grateful, the Liquor transparent, but its Colour brownish; and in the Bottom of the Vessel there was a Sediment.

II. Oil of Tartar, added to the *Bile*, produced no new Phenomenon upon their being mix'd. Twenty-four Hours after, it assumed an obscure-brownish Colour, but the Liquor was entirely limpid and transparent; and in the Bottom of the Vessel there was a small Quantity of a white Sediment. Its Smell resembled that of over-roasted Eggs. The Bitterness was the same, but rather more intense. On the third Day it was still the same; and the Addition of common Water produced no new Phenomenon. On the twelfth Day the Smell resembled that of Lime. There was a small Sediment at the Bottom; the Liquor above it was transparent, and its Colour somewhat greenish.

III. Salt of Wormwood, reduced to Powder, and added to the *Bile*, at first produced no Change in it. Twenty-four Hours after, the Salt lay entirely undissolved at the Bottom. The Liquor itself was somewhat transparent, and its Colour was darkish, resembling that of Tobacco. It had the same urinous and putrid Smell, the same Bitterness; but soon after, becoming more acrid, and its Bitterness being much increased, a small Quantity of it, which I tasted, excited a violent Vomiting. By adding common Water its Colour was changed into a Dark-yellow. On the third Day after the Addition of the Water it became somewhat fetid, but its Colour remained the same. The Salt was not as yet dissolved in the Bottom of the Vessel, but remained without any Alteration for fifteen Days.

IV. Crude Alum, reduced to Powder, produced no remarkable Change in it, when first mix'd with it. The second Day, however, the Liquor was highly turbid; its Colour obscure, but transparent, and greenish towards the Surface. Towards the Bottom of the Vessel it was viscid, dense, and a cineritious Portion settled at the Bottom. Its Smell resembled that of salted Fish. Its Bitterness was somewhat diminish'd. On the third Day it was the same in every respect. Upon an Admixture of common Water it immediately acquired a Colour resembling that of Butter. On the twelfth Day the Liquor was transparent, but its Colour remain'd the same; and in the Bottom of the Vessel there was a brownish Sediment.

V. Twenty-four Hours after an Admixture of Cinnamon-water, there was a white cineritious Sediment in the Bottom of the Vessel; but the Liquor above it was transparent, and of a brownish, but not very dark Colour. The Smell was the same with that of the Cinnamon-water, which had proved more than a Balance for the urinous, putrid Smell of the Sheeps Gall. The Bitterness was grateful enough to the Taste, and not very pungent, but resembling that which I observed produced by the Salt of Wormwood. The third Day after, it was the same in all respects. Upon an Addition of common Water, there was no Change produced in its Colour; but the Smell became highly grateful: On the twelfth Day the Liquor became turbid, and its Smell disagreeable.

VOL. I.

VI. Tincture of Cantharides extracted upon hot Ashes, with common Water, and added to the *Bile*, produced no Change when first mix'd. The second Day after, there was a small Quantity of a thin farinaceous Sediment found at the Bottom; but the Liquor about it was transparent, and of the Colour of Tobacco. Its Smell was ungrateful, like that of the Leaves of Dwarf-elder bruised. Its Bitterness was not very ungrateful; and on the third Day its State was the same. Upon an Addition of common Water nothing new happen'd. On the twelfth Day all the Parts of the Liquor were turbid; it assum'd a feculent reddish Colour, and an ungrateful Smell.

VII. Upon an Addition of common acid Spirit of Salt, there was a Fermentation, and a Change of the Colour, into an Obscure-yellow, produced. On the second Day the Colour was highly green, and in the Bottom of the Vessel there was a gross white Meal. The Smell was ungrateful, and resembled that of salted Fish. Its Bitterness was ungrateful, and a small Quantity of it, being tasted, excited a kind of Inclination to vomit. On the third Day it was the same in every respect. Upon an Admixture of common Water, the Liquor became more transparent, and somewhat whitish. On the fifteenth Day the Smell was the same, but somewhat less intense. In the Bottom there was a greenish Sediment, and the Liquor above it was green and transparent.

VIII. Spirit of Hartshorn, added to the *Bile*, immediately changed its Colour into a beautiful, but somewhat obscure Yellow; and there was no Sediment to be seen at the Bottom. The Smell of the Spirit proved more than a Balance to that of the *Bile*. Its Bitterness was grateful, almost like that produced by the Cinnamon-water. On the third Day the Colour of the *Bile*, its Transparency, and Smell, remain'd the same till the eighth, when, upon an Addition of common Water, all its Parts became clearer. On the twenty-fifth Day, by adding warm Water, the Liquor became turbid and foul, and assum'd an ungrateful Smell, and a Colour resembling that of the Yolks of Eggs.

IX. Eighteen Hours after an Admixture of Spirit of Sal Ammoniac, it assum'd an universally transparent beautiful Colour, like that of a Ruby. The Smell of the Sal Ammoniac was stronger than that of the *Bile*. The Taste was gratefully bitter, like that produced by the Cinnamon-water and the Spirit of Hartshorn. On the third Day it was in the same State; but its Colour was a little more obscure, and continued so till the tenth Day; when, by an Addition of common Water, it assumed a beautiful transparent Colour, like that of pure White-wine. After which, by reason of the Admixture of the Water, it became turbid, foul, and assumed an ungrateful Smell.

X. Upon an Addition of Spirit of Nitre, it was immediately changed to a Colour resembling that of the Yolks of Eggs, and a gentle Fermentation was produced. On the second Day its Colour was intensely green, and rather more so than when mix'd with Spirit of Vitriol. Its Smell was acid and ungrateful, and in the Bottom of the Vessel there was a thick white Mass. The superior Part of the Liquor was green, and somewhat transparent and limpid; but its Taste was acid and bitter. On the third Day it was the same in all respects; but upon the Addition of common Water, its intense Greenness was somewhat abated. On the twelfth Day there was a large Quantity of Sediment at the Bottom, and the Liquor above it was transparent, but of a high-green Colour, which remained the same.

XI. Upon an Addition of Spirit of Vitriol, it was changed from its natural brownish Colour to one resembling that of the Yolks of Eggs, and a small Ebullition was produced. On the second Day all the Parts of the Liquor were become turbid, and gross Filaments floated confusedly in it. Its Colour was everywhere greenish, and somewhat inclined to an azure Blue. Its Smell was like that of salted Fish, and its Taste entirely acid. On the third Day its State was the same in every respect: Its acid Smell strongly affected the Nostrils.

XII. When the *Bile* was mix'd with Aqua-fortis, Bubbles were immediately produced, which forthwith became green, and a kind of azure-colour'd Scum floated on the Top of the Liquor. Twenty-four Hours after, its Smell was highly penetrating and acid; and the Liquor itself being highly turbid, a gross farinaceous Sediment was observed at the Bottom of the Vessel. In the Middle the Liquor was somewhat transparent; on the Surface there floated a gross kind of Mucilage, of a white cineritious Colour; and a Froth and Bubbles appear'd about the Sides of the Vessel. On the third Day the Appearances were the same, except that the Smell resembled that of acid and corrupted Milk. On the twelfth Day its State was the same.

XIII. By an Addition of Vinegar the Colour of the *Bile* was immediately changed into that of the Yolks of Eggs, and render'd entirely thick. On the second Day there was a gross farinaceous Sediment deposited at the Bottom of the Vessel: The Liquor above this Sediment was of a greenish Colour, but turbid. Its Smell was urinous and putrid, like that of salted Fish; and its Bitterness was somewhat abated. On the third

Day it was in the same State, and remain'd so till the fifteenth.

XIV. Common Water, added to the *Bile*, changed its Colour immediately from a dark-brown to a yellow; but it was not so pellucid as before. The sharp Smell of the *Bile* was the same, but rather more intense. Twenty-four Hours after, it had the same unious putrid Smell, and its Colour became a little greenish. Upon an Addition of a small Quantity of fresh Water the same greenish Colour remain'd, but the Bitterness was abated. On the third Day the Liquor was turbid; and on its Surface there was a Pellicle, like that which usually floats on corrupted Liquors: It was also highly fetid.

XV. This *Bile*, when mix'd with moderately sweet White-wine, became immediately turbid, and its Colour was changed into that of a foul Yellow. The Acrimony of the *Bile*, which before acted so forcibly on the Nostrils, was immediately abated. Twenty-four Hours after, its ungrateful Smell ceased altogether. In the Bottom there was a Substance like a white Meal deposited; and the Liquor above it was yellow, transparent, and intensely bitter. On the third Day it was in the same State, but without any fetid Smell. On the twelfth Day all the Parts of the Liquor became fetid and turbid. *Bagliv.*

Five Pounds of Hogs Gall, newly taken from the Animals, upon Distillation, yielded almost seventy-one Ounces of various, and those sulphureous Liquors; and five Ounces and an half of Oil: Among all which there was an Ounce and an half of a thick and compact Matter, like Colophony or Bitumen; and two Drams of a fix'd Salt. These Liquors remain'd without a Sediment, neither did they become fetid, nor undergo any Change. When digested together, by a gentle Heat, for thirty-one Days, they lost four Ounces of their Weight: And the four Pounds and eleven Ounces which remain'd, left between four and five Ounces of a thick Sediment in the Bottom of the Vessel; and the Liquor above this Sediment was pellucid, and of a greenish-brown Colour. *Du Hamel Hist. Ac. R. S.*

The *Bile* of a human Body, subjected to Distillation with a gentle Fire, immediately yields a Phlegm, and a thick and quickly inflammable Resin remains at the Bottom of the Vessel. By increasing the Fire there ascends a moderate Quantity of a volatile acrid Salt, which leaves behind it, in the inferior Part of the Vessel, a large Quantity of a fix'd, acrid, and lixivial Salt, in form of a dark-colour'd Mass, of a highly acrid Taste, and penetrating Smell. Human *Bile*, when mix'd with Acids, especially those furnish'd by the Mineral Kingdom, produces a gentle Effervescence, and is very sensibly changed as to its Colour. Upon an Admixture of Spirit of Vitriol, or that of Sulphur, there is a gentle Ebullition produced in it, and it becomes more or less green; letting fall at the same time an acrid Sediment to the Bottom, and losing somewhat of its Bitterness. On the contrary, volatile alkaline Substances not only render it more thin and transparent, but also increase its yellow Lemon-colour. *Bagliv.*

From the above-enumerated Experiments it plainly appears, that the *Bile* is an Humour composed of an Oil, a Salt, and Water. It may therefore be consider'd as a liquid Animal Soap, so that it is of an abstergent and resolvent Quality. That it is so, the Practice of some Tradesmen is a sufficient Proof; for Dyers of Cloth, in order to take out the Grease which sticks to the Wool, and hinders the Adhesion of the Colour, use Soap, or putrid Urine, after it has assumed an alkaline Nature, or a Lixivium of some fix'd Alkali. But they may, with equal Success, use Ox-gall for the same Intention. Painters also use the *Bile* of Animals for mixing and diluting their Paints. It discovers its Efficacy to be the same in Medicine, where a saponaceous Quality is requir'd, or where the Intention is to absterge, where the sluggish Vessels are to be stimulated, where a tenacious Substance is to be resolved, or a viscid one attenuated (*see Boerb. Aph. 75. 5.*). Besides, as *Bile* has for an Ingredient a Salt, which, tho' not an Alkali, yet inclines, and, as it were, approaches to it, like other animal Salts, it must of course prove an efficacious Medicine in those Disorders, where an Acid is to be refitted and corrected: So that it must be beneficial to Bodies which are prone to generate Acids, to such as abound with mucous and pituitous Humours, and to those who lead a sedentary Life, or labour under Loss of Appetite. It is also added to purgative Medicines, with a View to lubricate, stimulate, and resolve. The Method of using it is to dry it a little, and make it up into small Pills: Three or four Grains may be given for a Dose to Adults; but, for Infants, one Grain of it is sufficient for a Dose. It seems to be owing to this saponaceous resolvent Quality, that a few Drops of the *Bile* extracted from a living Dog, and mix'd with the *Aqua Epileptica* of *Langius*, produce the desired Effect in the Cure of the Epilepsy. *See Att. Haffn. Vol. 3. Obs. 20.* From these Circumstances we are enabled to discover the Reason, why *Boerhaave* recommended the Use of *Bile*, not only against a spontaneous Gluten, or viscid Humours in general; but more especially prescrib'd it against those Coagulum form'd in the *Primæ Viæ* of Children.

For this Intention he recommends the Galls of Quadrupeds

and Fish, especially those of the Pike and Eel: His Method of prescribing is as follows:

Take of the Galls of a Bull and of a Pike, each four Drams; let them evaporate slowly, on a gentle Fire, till they have acquired the Consistence of Honey; then add a sufficient Quantity of the Powder of fresh *Arum-root*. Make into Pills, weighing three Grains each, to be cover'd with Leaf-gold. Let the Patient take one of these in the Morning; at Noon, and at Night, an Hour before his Meals.

To this Class belongs also the Stone call'd, by the *Spaniards*, *Pedra del Porco*; an Infusion of which, in distill'd Water of *Carduus Benedictus*, or *Rhenish* Wine, may be drank, taking two or three Ounces for a Dose.

To this Class also belongs *Helmont's* Medicine, prepar'd of the Liver and Gall of an Eel, reduced to a Powder by a gentle Fire; one Dram of which is to be given, with three Ounces of *Rhenish* Wine, for a Vehicle. *Boerb. Mater. Med.*

In Page 228. of the same Work, he prescribes a Clyster in the following manner, which he recommends against Disorders of Children, arising from a caseous Coagulation of the Milk they feed on:

Take of Ox's Gall, half a Dram; of the Honey of Mercury, half an Ounce; of distill'd Mint-water, an Ounce and an half: Mix up for a Clyster.

Bile may also be used in deterring glutinous fordid Ulcers. It may also be successfully used in Disorders of the Eyes, where Deterging is indicated as proper: For which Reason *Pliny*, L. 28. C. 1. informs us, that Suffusions are cured by the Gall of a Man. *See Dioscor. L. 2. C. 17.* *Etmuller* informs us, that the Gall of Fish, especially that of the Sea-lamprey and Pike, the distill'd Water of it, and its Essence, are proper for curing the *Pannus Oculi*, or that Disorder of the Eyes which is caused by an Inflammation in the small Vessels of the *Adnata* (*see Pannus*); and that the Secret of *Burrhus*, for this Disorder, was human *Bile*, distill'd from a low Glass Cucurbit, by means of a Brass or Copper Alembic. From what has been said it appears, that the Gall of Animals may be reckon'd among those Medicines which are of a detergent, anti-acid, and resolvent Nature. Hence it is also plain, that the stimulating and anti-acid Virtues of those Stones which are found in the Gall-bladders of Animals, are owing to the *Bile*, which is, in a particular manner, proved by the Stone call'd *Pedra del Porco*. But as the *Bile* soon becomes putrid, and consequently acrid, it is obvious, that it is safer to use it as recent as possible, rather than when old: But it appears that *Bile*, administer'd internally, in hot Constitutions, and such Patients as are choleric, must always do Harm rather than Good, by what has already been said. If, then, the Gall of Animals is unseasonably used, or exhibited in too large Doses, it is then supposed to exert an acrimonious Quality prejudicial to Health; for which Reason every kind of Gall is by some rank'd among Poisons, because it excites bilious Vomitings and Syncopes. *See Forest. Obs. Med. L. 230. Obs. 7. Schol.* But whether the Notion of Poisons is not render'd more intricate than it otherwise might be, by thus ranking among them whatever produces fatal Effects, by being imprudently used, I leave to others to judge. As for the other Properties of Gall, *Pliny*, L. 18. 9. seems to be well enough acquainted with them. "Among all the other Substances, says he, common to Animals, the Gall produces the most important and salutary Effects; for it is possess'd of a heating, pungent, inciding, extracting, and discutient Quality. The Gall of the smaller Animals is thought to be of a more subtle Nature than that of the larger, and consequently better adapted to the Disorders of the Eyes. It is probable there is some Difference between the Biles of different Animals; for, first, the *Bile* of Fish is more acrid than that of Land-animals. Secondly, among Land as well as Water-animals, those which have the smallest Bodies, are most habituated to Motion, and feed upon other Animals, have a more acrid *Bile* than such as are larger, and feed otherwise. Among Fish, the Preference is given to that of the Pike and Eel; among Land-animals, to the Hawk and Serpent." *Dioscorides*, L. 2. C. 17. has observed, that the Biles of some Animals are preferable to those of others in point of Acrimony. But *Paulus Aegineta* is so explicit and distinct upon this Subject, that his Words deserve our Attention. See the Quotation before from this Author. With regard to keeping *Bile* in the Shops for medicinal Purposes, we find the following Directions: The Gall is to be taken from Animals of a middle Age, which have neither suffer'd Hunger nor Thirst, and which have neither been fatigued by too violent Exercise, nor been too much provoked. Having first tied the Vessels which give Ingross and Egress to the *Bile*, it is to be taken immediately from the Liver itself, and put for some time into boiling Water; after which it is to be taken out of the Water, dried in a proper Place, and close kept for Use. It is also sometimes hung up in a Chimney,

in order to dry, without being put into boiling Water. Bile is sometimes used recent and newly taken from Animals, especially from Cocks, Partridges, Fish; and other Animals that may easily be obtain'd, and purchased at a cheap Rate. The Gall of Animals is, by the *Chinefe*, applied to the worst and most detestable of Purposes, since they secretly mix it up with other Ingredients, in order to protract the Cure of Wounds, and increase the Misery of their Patients. That the Gall of Bulls produces a golden Colour, when applied to Objects, has been long ago observed by *Pliny*, L. 11. C. 37. There remains another medicinal Preparation of Ox-gall, to be met with in *Lemery's Pharmacop. Univerf.*

Ox-gall, says he, contains a volatile Salt, which renders it deterfive, and proper to cleanse the Skin; but as it is very viscid, and will not keep without corrupting, a Preparation may be made of it in the following manner:

Take of Sugar-candy, two Ounces; of Roch-alum, half an Ounce; of Borax, and Sandiver, or Salt of Glafs, each three Drains. After having reduced all these Ingredients to a Powder, and put them into a Glafs Vessel, add to them four Pounds of Ox's Gall, distil'd by a Sand-heat from a Glafs or Earthen Cucurbit: Stop the Vessel well, and expose it to the Heat of the Sun, or the Smoke of a Fire, for the Space of fifteen Days, shaking it now-and-then; after which filtrate the Liquor, and preserve it for Use.

This Medicine renders the Skin delicate, smooth, and soft, and is esteem'd singularly efficacious in removing Freckles and Sun-burning. It is to be applied to the Face at Night, going to Bed; and is to be wash'd off next Morning with the Water of Lilies, or that of the Water-lily. This Medicine may also be laid on the Face in the Morning when one goes into the Fields, and continue till Night, that the Face may be the better guarded against the scorching Heat.

The Design of distilling the Ox-gall is, that it may preserve itself the better from Corruption, and be the more agreeable to the Ladies Faces. Camphire is generally added to this Preparation; but it is of little or no Use, since it not only remains undissolved, but also gives it a disagreeable Smell. I have also retrench'd the plumous Alum, and the corrosive Sublimate, by some used in this Medicine, because I judged them unsafe.

The Salts which enter this Preparation of Ox's Gall, serve to render it more deterfive and penetrating, that it may the more effectually remove the Blemishes of the Face.

The Vessel into which this Preparation is put must not be entirely full, that the Liquor may be the more commodiously shaken at proper Intervals.

A Preparation of Bile, for cosmetic Purposes, is more easily obtain'd, by dissolving inspissated Bile with tartarated Spirit of Wine, and precipitating it with Water of Frogs-spawn, according to *Hoffman* in his Notes to *Poteries*.

BINARIUS.

Tho' the Word *Binarius*, among the antient *Romans*, implied no more than the Number Two; yet the *Spagiric* Philosophers affix'd an Idea to it, which I cannot convey by any Words. I shall therefore represent their Sentiments in their own Terms. The *Binarius* then, according to them, was either *Naturalis*, or *contra Naturam*. The *Naturalis Binarius* was that which was produc'd by God, in consequence of the Division made between superior and inferior Objects, and which, when wrapt up, as it were, and included under the Bond of Unity, constitutes the *Ternarius*, when it is fit for returning into Unity. The *Binarius contra Naturam* is that very Thing, which, being highly inimical not only to Nature, but more especially to God, of old endeavour'd to destroy all created Objects. This, according to them, is the Source of all Diseases, and of Death; since it is not confin'd under any Bonds, but is rather the first Divorce, strongly endeavouring to break the Bond of Peace and Concord, not only among the supernatural, but also the natural Creatures of the omnipotent God, who form'd all things. *Theat. Chym. Vol. 1.*

By these he should mean the same which the *Persians* understand by their *Ormazd* and *Arimanius*.

BINSICA. A Rabbinical Term, according to *Helmont*, denoting mental Sickness, and particularly a distemper'd Imagination: or, as *Helmont*, in his mystical Way, terms it, an Atrophy of the Organ of the Phantasy, such as, he says, is excited by the Bite of a Tarantula, or a mad Dog, the Consequence of which is what he calls *Mors Binsica*, "a Binsical Death."

BINTAMBARU *Zeylanensis*. *Convolvulus maritimus Zeylanicus, Folio crasso cordiformi. Pes Capræ (à Folii Similitudine) Lusitanis.* *Herman. Catal. Hort. Leyd.*

It grows in *Malabar*, the Island of *Ceylon*, and other Parts of the *East-Indies*. *M. Herman* supposes this *Convolvulus*, as well as others of that Species, to abound with a purgative Salt, which he infers both from the Acrimony of its milky Juice, which strikes the Tongue and Fauces, and from repeated Experiments; for a Dram of the Refin of the Root, given in the

Yolk of an Egg, or any other convenient Emulsion, gently purged Water from Hydropical Patients: An Extract of the Root, prepar'd with Spirit of Wine, had the same Effect. Hence he believes, that the Opinion which the *Portuguese* and some *Indians* have conceiv'd of its diaphoretic Virtues, (which, perhaps, they entertain'd from its external Resemblance to *Sarsaparilla*) is merely imaginary. Tho' the Root be in the List of Cathartics, its Leaves are the common Food of Rabbits, Deer, and wild and tame Goats. *Raii Hist. Plant.*

BIOLYCHNIUM, *βιολύχνιον*, from *βίος*, Life, and *λυχνίον*, a Candle, or Lamp. The Lamp of Life; a Term much us'd by some late Writers, and signifies the same as the *vital Flame*, or the *natural Heat*: It signifies also a sort of Secret prepared of human Blood, mention'd by *Beguinus, Castellus*.

BIOS, *βίος, βίος, βίος*, generally signifies Life, and its Course; but sometimes means no more than *Victus*, *Vitæ*, or Food necessary for Life. *Castellus*.

BIOTE, *βίωσις*, Life, in an affected Sense, signifies the Time of Continuance of Aliment in the Body, according to *Galen*, *Apb. 20. Lib. 6. Epid. Sect. 5. τὰ ἀδυνεστερα σίλια ὀλιγοχρόνια βίωσιν ἔχει*, "weak Food has a short Life annexed;" that is, weak Aliment makes Persons short-liv'd; or, in the Sense before, is but of short Continuance in the Body.

BIOTHANATI, *βιοθανάτοι*, from *βίος*, Life, and *θάνατος*, Death. A Term applied to those who die a violent Death. *Castellus*.

BIPINELLA, an Herb, the same as *PIMPINELLA*, which see.

BIPULA, a sort of Worm in *Aristot. Hist. Animal.* as *Gaza* interprets him. *Castellus*.

BIRA. Beer. The same as *CEREVISIA*, which see. *Castellus*.

BIRSEN, an *Arabian* or *Persian* Word, signifying an Inflammation or Impostume of the Breast; for *Bir* signifies a Breast, according to *Avicenna* and others. *Castellus*.

BISCOCTUS, *βισκοκτος, διπυρρής*, twice dress'd, or that has twice felt the Fire; chiefly applied to Bread twice bak'd, or that is much bak'd. *Biscuit*.

BISEMATUM. The lightest, palest, and basest Lead. *Rulandus*.

BISERMAS. A Species of *Horminum*. See *HORMINUM*.

BISLINGUA, *Hippoglossum, Uvularia, Offic. Hippoglossum sive Bislingua*, *Park. Theat. 702. Hippoglossum mas & fœmina*, *Ger. 761. Emac. 908. Bonifacia sive Bislingua*, *J. B. 1. 575. Hippoglossum, Bislingua, Bonifacia*, *Chab. 45. Laurus Alexandrina, fructu pediculo insidente*, *C. B. Pin. 305. Rufus angustifolius, fructu folio innascente*, *Tourn. Inst. 79. Elem. Bot. 70. Boerh. Ind. A. 2. 63. DOUBLE-TONGUE*.

This Plant is commonly cultivated in the Gardens of Botanists, and is said to be of a vulnerary Quality. *Dale Pharmacologia*.

BISMALVA. The same as *ALTHÆA*, which see.

BISMUTHUM, *Offic. Charlt. Foss. 49. Aldrov. Mus. Metal. 161. Bismutum plumbum cinereum*, *Worm. 125. Marcasita sive Bismutum*, *Schrod. 456. Marcasita argentea*, *Cæsalp. Galena inanis, Germanis Blende*, *Woodw. Att. Tom. 1. 182. Bismuthum*, *Idem, Tom. 2. P. 1. p. 28. MARCASITE OF SILVER, or TIN-GLASS. Dale*.

Bismuth is a Species of Tin, or a white and brittle metallic Substance, dispos'd in small Laminæ, shining like Glafs; for which Reason it is call'd Tin-glafs. It seems to be compos'd of a mineral Salt, a gross Sulphur, Mercury, a small Quantity of Arsenic, and a great deal of Earth. *Mr. Pöli*, having pound'd separately one Part of Bismuth, and two of corrosive Sublimate, and mix'd them in a Retort, to which a Receiver was adapted, extracted from them, by Distillation, a sort of Gum or Butter, which partly adhered to the Neck of the Retort, and partly fell into the Receiver. This Butter he distill'd a second time, and, besides another Butter yielded like the former, there remain'd in the Bottom of the Retort a very fine Powder, of the Colour of oriental Pearls, soft to the Touch, and somewhat glutinous. A third Process yielded him a Powder still more fine and beautiful. In short, he repeated the Operation 'till the Butter was entirely chang'd, partly into running Mercury, and partly into a pearl-colour'd Powder. This Powder may be used either in representing fine Pearls in Painting, or in giving their agreeable Colour to any Objects. *Histoire de l'Academie Royale, 1713.*

Bismuth, or *Tin-glafs*, named *Bismuthum*, *Officin. Plumbum cinereum Agricola, Marcasita argentea*, *Quorund.* is a metallic, fusible, but not ductile Substance; very brittle and heavy, and distinguishable from Lead and Tin by its Colour, which is sometimes shining, like Silver, sometimes of a faint Purple, resembling the Regulus of Antimony, but consisting of broader Laminæ, and staining the Fingers. It is prepared by Artists, by being first torrefy'd, and then melted into a Regulus. It is often found in Silver Mines; and where-ever the Miners find *Bismuth*,

Bismuth, they conclude they shall find Silver; and hence they call it the Proof of Silver. The Mines of *Bismuth* are in *Bohemia* and *Misnia*. Some pretend that it may be extracted from Cobalt melted into a *Regulus*, by a particular Process; but this is not certain.

Bismuth seems to have been unknown both to the *Greeks* and *Arabians*; for the *Arabian Marcasite* was the *Lapis Pyrites*. It is very seldom used in Physic, tho' some prepare Flowers from it, which they say are diaphoretic; but most Physicians have been afraid to use it inwardly, because of the arsenical Parts contain'd in it. The Magistery of *Bismuth* is prepared by dissolving the Metal in Spirit of *Nitre*, then precipitating it with a Solution of Sea Salt in Water. This Precipitate, being edulcorated by frequent Lotions, becomes a very white Powder, much valued by the Ladies as a Cosmetic, and much used by Dealers in Hair, to improve the Colour of it when dark or red. Pewterers mix it with Tin to harden it, and give it a more shining Colour. *Geoffroy*.

PROCESSES upon BISMUTH.

FLORES BISMUTHI: Flowers of Bismuth.

Beat the *Bismuth* into very fine Powder, and to four Ounces of it put half a Pound of *Nitre*, also in fine Powder; put in that Mixture, by half a Spoonful at a time, into an earthen Body, perforated in the Side; when the Body is red-hot, and the Operation is over, take away the Aludels, and wipe off the Flowers with a Feather.

These are very white, and used as an excellent Fucus, mix'd with Pomatum, or Rose-water; but they must not be too busy with it, who try it upon their Complexions; for the saline Parts of the Arsenic may do Mischief many ways. But if the *Nitre*, and the Arsenical Salts, are wash'd away by frequent Solutions in warm Water, it will not only continue to be a good Cosmetic, but also may with Safety be given internally, and by some is reckon'd a good Diaphoretic. Yet, as the *Materia Medica* is large enough in its Supply for that Intention, there is no Occasion to torture a Poison to make a Medicine of it. Its Dose is from ten Grains to two Scruples or a Dram. *Quincy's Dispensatory, from Wilson's Chymistry*.

Lemery's Method of making these Flowers is somewhat different.

The Flowers of *Bismuth* are nothing but a Portion of Tin-glass, elevated in form of a fine Powder, by means of volatile Salts.

Calcine the *Bismuth* in the manner Lead is commonly calcin'd; then mixing it with an equal Quantity of Sal Ammoniac, put your Mixture into an earthen Cucurbit capable of bearing the Fire; but two Thirds of the Cucurbit must at least be left empty. Adapt a Blind-head to it. Lute the Junction carefully. Place your Vessel in a small Grate-furnace, with an open Fire, but yet in such a manner, as that the Fire may breathe only thro' the Registers, for which Purpose the Top of the Furnace must be closed up with Bricks and Clay. The Cucurbit must also be sunk a Third, or thereabouts, of its Height in the Furnace. Apply a small Fire at the Beginning; then augment it gradually, till the Bottom of the Vessel becomes red; and then continue it in the same Degree, till nothing ascends any longer, which may be known when the Head is become cold, and then the Sublimation is completed. Then allow the Vessels to cool, and unlute them. By this Process you will obtain Flowers, which may be dissolv'd in Water, and precipitated with Spirit of Sal Ammoniac, or Oil of Tartar.

This Magistery, or Precipitate, may be applied to the same Uses with the following.

MAGISTERY of BISMUTH.

Magistery of Bismuth is nothing but Bismuth dissolv'd, and precipitated into a very white Powder.

Dissolve in a Matrafs one Ounce of the gross Powder of Bismuth, with three Ounces of the Spirit of *Nitre*; pour the Dissolution into a clean earthen Vessel, and add to it five or six Pounds of Spring-water, in which half an Ounce of Sea Salt has been previously dissolv'd; upon which a white Powder will be precipitated to the Bottom. Pour off the Water by Inclination, and wash the Magistery several times; then dry it in a Shade. This is the Cosmetic which the *French* call *Blanc-d'Espagne*, or the celebrated white Spanish Cosmetic, which is esteemed so fine a Cleanser and Whitener of the Face. The Method of using it is, either to mix it with Pomatum, or with Oil of Lilies. Wig-makers also use it, in order to beautify their Hair.

REMARKS.

A pretty large Matrafs ought to be employ'd in dissolving the *Bismuth*, in order to give room for a violent Effervescence, which is produc'd as soon as the Spirit of *Nitre* is pour'd upon that Mineral. The Operator must guard, as much as he possibly can, against admitting the Steam either into his Nostrils or Mouth, because it is highly prejudicial to the Breast.

This quick and violent Effervescence proceeds from this; that the Pores of the *Bismuth* being pretty large, the Acid immediately makes its Way into them, and violently removes every thing that opposes its Motion. On this Occasion it also happens, that the Matrafs is so heated, that one cannot hold a Hand upon it; because the Points of the Dissolvent strike with a great deal of Force upon the solid *Bismuth*, by which a Heat is produc'd, resembling that which results from the Friction of two solid Bodies upon each other for a considerable time. Besides, the Quantity of fiery Particles contain'd in the Spirit of *Nitre*, may contribute very considerably to the Production of this Heat.

If the Solution is turbid, on account of any Impurities contain'd in the *Bismuth*, a double Quantity of Water being mix'd with it, it must be filtrated; for, if an Attempt should be made to filtrate it without Water, it would coagulate in the Form of a Salt, and, consequently, become incapable of passing thro' the Filtre. This Coagulation proceeds from this, that the acid Spirits of the *Nitre*, which are sheath'd up in the Particles of the *Bismuth*, finding too small a Quantity of Liquor to float and disperse themselves in, unite together in the Form of Crystals, when the Solution becomes cold.

The Impurity which generally floats upon the Solution of *Bismuth*, is a pinguious and bituminous Substance, which is not dissolvable by the Spirit of *Nitre*.

This Magistery may be made, by pouring a large Quantity of Spring-water without Salt into the Solution; but it is more quickly done, and the Precipitation more exactly made, by the Addition of the Salt, which agitates and breaks some of those acid Parts, which the Water alone was not powerful enough to subdue and divide. A Difficulty here arises, and that is, why common Water alone precipitates the *Bismuth*, Lead, or Antimony, which an Acid has previously dissolv'd, but can neither precipitate Gold, Silver, nor Mercury, without the Assistance of some Salt, or some other proper Substance. I suppose this Phenomenon is produc'd, because the former Substances having large Pores, the Acids are not so strongly lock'd up in them, but that they may be dislodg'd by Water; whereas Gold, Silver, and Mercury, having Pores comparatively very small and minute, keep the Acid so strongly lock'd up, that it cannot be separated by the too languid Agitation of the Water alone, which, to produce this Effect, requires the Addition of some other Substance, capable of giving stronger and more violent Shocks.

The Augmentation happening to the *Bismuth*, when reduc'd to a Magistery, proceeds from some Part of the Spirit of *Nitre* being retain'd in it, notwithstanding the Precipitation and Lotion. If we incline to have it exceedingly white, 'tis not only necessary, that the Water us'd in washing it should be very pure and transparent, but, after it has been thoroughly dried in a Shade, it must be carefully kept in a Glass-phial, well stopp'd; for the Air renders it of a dark and brownish Colour.

As for the Method of using this Magistery, a Dram of it is ordinarily mix'd with four Ounces of the Lily or Bean-flower Water, or with an Ounce of Pomatum. This Medicine is good for the Itch, because it destroys the Acids, or Salts, which foment and nourish that Disorder: But this Magistery is rarely used in any other Shape than that of a Cosmetic: It is the Paint most generally used by Women who incline to improve their Complexions, because it is more easily laid on, and adheres more firmly, than other Paints. But as the Marcasite, from which it is drawn, is of the metallic Kind, the Heat of the Skin reunites, revivifies, and renders brown, its Particles, which ow'd their Whiteness only to their Division; for which Reason, those who make frequent Use of this Paint, have generally a livid Countenance, and the Skin of it more rough and unpolish'd, than it was before they began to use it.

If, for the sake of Curiosity, we filtrate the Water used in precipitating the Magistery of *Bismuth*, and, with a new Pen, write any thing with it on white Paper, the Letters will not at all appear; but if, after they are thoroughly dry, we rub them gently with a little Cotton, dipt in a Decoction of the Scorix of Antimony, they become very black. *Lemery Cours de Chymie*.

BISON.

This is a Sort of wild Ox in the *Indies*. His Forehead is large, his Horns crooked, sharp at the Points, black and shining;

ing; his Eyes are large, fierce, terrible, and flaming; his Tongue is so rough, that the Part lick'd with it is excoriated, and Blood is drawn from it. In his Tail there is a large Quantity of Hairs, which smell like Musk. This Animal frequents the Woods, and is of so savage and cruel a Nature, that 'tis dangerous to come in his Way. The Horns of this Animal, when reduced to a Powder, and taken internally, are esteemed sudorific, and proper for resisting Poisons. The Dose of this Powder is from half a Scruple to one Dram.

The Excrements of this Animal are possessed of a highly resolvent Quality. *Lemery des Drogues.*

BISTACIUM, for PISTACIUM, or PISTACIA, which see.

BISTORTA, Offic. *Bistorta Serpentina*, Chab. 507. *Bistorta major*, Ger. 322. Emac. 399. Raii Hist. 1. 186. Synop. 59. *Bistorta major vulgaris*, Park. 391. *Bistorta major, rugosioribus foliis*, J. B. 3. 538. Dill. Cat. 89. *Bistorta radice minus intorta*, C. B. 192. Hist. Oxon. 2. 585. Tourn. Inst. 511. Boerh. Ind. A. 2. 86. Buxb. 39. BISTORT or SNAKE-WEED.

The Roots of the great Bistort are about as thick as the little Finger, brown on the Outside, and reddish within; somewhat curled and twisted, with many small Fibres growing out on every Side. The Leaves resemble somewhat the Leaves of the common Dock, but are of a firmer Substance, of a bluish-green Colour above, and ash-colour'd underneath, much narrower at the End next the Root, having only a narrow Film running on each Side the Stalk. The Flowers grow in Spikes like Ears of Corn, of a pale-red Colour, made up of several small, imperfect, staminate Flowers, in which grow black triangular Seeds; they stand on Stalks a Foot or a Foot and a half high, which have a Leaf or two at the Joints, encompassing them round next the Stalk, and growing narrower, and sharp-pointed at the End.

Bistort grows in several moist Meadows, tho' it is not very common about London. It is to be met with in *Buttersea* Meadow, near the *Thames* Side, flowering in May.

The Roots of Bistort, which are the only Part that is used, are drying and binding, of Service in all kind of Fluxes and Hemorrhages, either from the Bowels, or any other Part; they help the Incontinence of Urine, and the making bloody Water. They are also Alexipharmic, and good in pestilential Fevers; they resist Poison, and the Bites and Stings of venomous Creatures. *Miller's Bot. Off.*

The Root is mostly used in the Shops, and is of a healing, astringent Quality, especially in Dysenteries, bloody Fluxes, Dysenteric Exulcerations of the Intestines, and Vomitings of Blood. It cures an excessive Flux of the Menfes and Hemorrhoids, and removes violent Vomitings. It quenches Thirst, for which Reason it is by *Paracelsus* called *Anafaca*, by which he perhaps meant *Anafaca*. The principal way of using it is to mix it with other proper Herbs for the Cure of the Dropsy. *L. Thurneijser, de Aquis Miner. & Metall. L. 6. C. 67.* affirms, that it kills Worms in the Intestines. It is also used in Defluxions, and Pains of the Head, malignant Fevers, Small-pox, Measles, and the Plague. It proves a Check to the too violent Ebullition of the Blood, and prevents the overheating of its more spirituous Parts. It prevents Miscarriages, and cures Wounds and Ruptures. And when any Vessel in the Abdomen is broken, it is often made an Ingredient in vulnerary Drinks, prepar'd as a Remedy. The Root powder'd, and thrown into recent Wounds, stops the Effusion of Blood, and cures them. A Decoction of the Root also, with Wine and Vinegar, stops immediately the most violent Effusions of Blood from Wounds, if washed with it. Some take two Parts of the Root reduc'd to Powder, and one Part of Quick-lime, and mix them with Wine and Vinegar, and, after having evaporated the Humidity, use the Powder which remains in the Vessel for curing the Cancer. The Root mix'd with some Water proper for Disorders of the Mouth cures Tooth-achs, fixes loose Teeth, and hardens the Gums, by preventing a Fluxion of Humours to them. Some distil a Water from the Root, Leaves, and Flowers. Others prepare a Syrup from the Root, which they call *Syrupus Colubrinus*. Both these Medicines are accounted excellent against the Plague, Dysentery, Fluxes, Vomitings of Blood, immoderate Discharges of the Menfes, and Vomitings. The Water cleanses and heals all old Ulcers and Cancers, if they are washed with it, and some of the Powder of the Root is sprinkled upon them. It is confidently affirmed, that it banishes all Insects from a House. *Barthol. Zorn Botanologia.*

BITHYNIALCA and GASTERANAX are Words coined by *Dolæus*, to signify a peculiar active Principle residing in the Stomach, and presiding over the several Functions of Chylification, Distribution, and Secretion.

BITHYNICI *Tonforis Emplastrum*. The *Bithynian* Barber's Plaster for splenetic and hydropical People. It is describ'd by *Aetius, Tetrab. 3. Serm. 2. cap. 22.*

BITHYNOS, *bithyn*, the Name of a Plaster described by *Galen, L. 9. de comp. Med. Sec. Loc. cap. 31.* also Vol. I.

a Troche in the same Author, *Lib. 5. de comp. Med. per Genu cap. 12.*

BITI. The Name of a tall and evergreen Tree growing in *Malabar*, and other Parts of the *East-Indies*; all the Use it is known to have in Medicine is, that an Oil is prepared of the Root, which cures an Alopecia. *Ray.*

BITRINATI. Glased. *Rulandus.*

BITTERN. At the Salt-works, where Salt is made from the Sea Water, that Liquor which runs from the common Salt, when taken out and put into proper Vessels, is called Bittern.

Or it is the Liquor which remains after the Crystallization of the common Salt. *Phil. Transact.* See SAL CATHARTICUM AMARUM.

BITUMEN, Offic. *Bitumen vulgare Pissaspphaltum*, Mont. Exot. 12. Græbal. 20. *Pissaspfaltus nativum*, Schrod. 4. 208. Diosc. *Pissaspphaltum*, Worm. Mus. 30. Charlt. Foss. 14. *Bitumen Fossile*, Aldrov. Mus. Metall. 382. COMMON FOS-SILE PITCH.

The *Pissaspfaltus* is produced in *Apollonia* near *Epidamnes*, and is carried down the *Ceraunian* Mountains by the Current of a River, and thrown upon the Shores, where it concretes into Masses, and smells like Pitch mixed with Brimstone. *Dioscor. lib. 1. cap. 100.*

The *Pissaspphaltum* of *Dioscorides*, and of the Shops, or mineral Pitch, is a black or red kind of *Bitumen*, of a fragrant and not unpleasant bituminous Smell, viscid, or of a middle Consistence between *Petroleum*, and a solid *Bitumen*, not unlike the common Pitch, fusible by Fire, concretescible by Cold, and easily inflammable. It is compounded of two Greek Words, which signify Pitch and *Bitumen*, and the Compound might be rendered a bituminous Pitch, or pitchy *Bitumen*; the Reason of which Name is not, that it consists of an artificial Mixture of these two Substances, but it smells like such a Mixture. It distils from Rocks, or springs from the Earth in several Countries. In *Italy* they use that which is found in the *Campania di Roma*, about sixty Miles from the City, near a little Town called *Catce*. It issues through the Crannies of Rocks in the Summer-time, of the Consistence of Honey, of a black Colour, and penetrating Smell. There is likewise a plentiful Spring of this *Bitumen* in *Auvergne* in *France*, which is soft and black like Pitch, and of a bituminous Smell. If it be kept a great while, it grows hard, retaining still something of its fatty Consistence, and never grows so dry or hard as the solid *Bitumens*.

Fresh *Pissaspphaltum* is digestive, maturating, and resolvent. It is used in ripening Buboes, resolving Tumors, discussing sciatic Pains, and to strengthen luxated Parts after they have been reduced. A Mixture of this, and slimy or muddy Clay, is called *Maltha*, and was used as Morter in building the Walls of *Babylon*, according to *Pitruvius. Geopray.*

The *Asphaltus*, of which an Account is given under the Word, is a Species of *Bitumen*, of which Dr. *Sharr* in his Travels gives the following Relation; this Author speaking of the *Dead Sea*, says thus.

I was informed, that the *Bitumen*, for which the Lake hath been always remarkable, is raised at certain times from the Bottom in large Hemispheres; which, as soon as they touch the Surface, and so are acted upon by the external Air, burst at once with a great Smoak and Noise, like the Pulvis Fulminans of the Chymists, and disperse themselves round about in a thousand Pieces. But this happens only near the Shore; for in greater Depths, the Eruptions are supposed to discover themselves only in such Columns of Smoke, as are now-and-then observed to arise from the Lake. And perhaps to such Eruptions as these we may attribute that Variety of Pits and Hollows which are found in the Neighbourhood of this Lake, and compared very justly, by Mr. *Alaundrell*, to those Places in *England*, where there have been formerly Lime-kilns. The *Bitumen*, in all Probability, is accompanied from the Bottom with Sulphur, inasmuch as both of them are found promiscuously upon the Wash of the Shore. The latter is exactly the same with common native Sulphur; the former is friable, heavier than Water, yielding upon Friction, or by being set on Fire, a fetid Smell. Neither doth it appear to be, as *Dioscorides* describes his *Asphaltus*, of a purplish Colour; but is as black as Jet, and exactly of the same shining Appearance.

BIVALVA, BIVALVULA. Bivalve. A Term in Botany, apply'd to the Pods or Husks of Plants, which open lengthwise in two Parts, like the Shell of a Muscle. *Miller's Dict.*

BIVENTER, *dygaster*, double-belly'd. The same as DIGASTRICUS, which see.

BIXA OVIEDI. A Name for the *ACTHORI*, which see.

BLABE, *blaze*. Hurt, Injury, Prejudice. Hence *blaze*, noxious, injurious.

BLACCIAT. A Name in *Rhazes* for the Measles.

BLACHMAL. *Johnson* says, that this imports a Matter consisting of various Metals melted together, and cast into Sulphur.

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BLACTARA. Cerufs, white Paint.

BLÆSITAS. Stammering, or Lispering. The same as **BALBUTIES.**

BLÆSUS also signifies a Person whose Legs are distorted and crooked, being bent outwards.

BLANCA. Cerufs, white Paint.

Blanca is also the Name of a compound lenitive purging Medicine, described in the *Antidotarium* of *Nicolaus*.

BLANCNON. A Name for Fern in *Oribasius*, *Med. Coll. lib. 12.*

BLANDUS, ἐνδς, ἡνδς. Gentle. An Epithet in Use among the Chymists, and Preparers of Medicines, and commonly applied to Fire or Heat, by way of Opposition to *fortis*, or *vehemens*, *strong*, or *violent*. Thus in the Affair of the Philosopher's Stone there is required *blandus Ignis*, a gentle Fire.

BLAPTISCULA. A Græco-latin Name for *Cyanus*, Blue-bottle, from βλάπτω, to hurt, and *seco*, because it incommodates the Mowers, by blunting the Edges of their Scythes. *Blancard.*

BLAS. A Term coined by *Helmont*, by which he means, as he says, the Force of Motion, both alterative and local; of this he makes two Kinds, the *Blas Meteoron*, and the *Blas humanum*. The first belongs to the Stars, whose *Blas motuum*, he says, is the pulsive Virtue by which they perform their Courses, and present their Aspects according to their Places; and this is their *local Blas*. The *Alterative Blas* of the Stars consists in the Production of Heat and Cold, especially by the Change of the Winds. Analogous to this *Blas Meteoron* is the *Blas Humanum*, which operates in Men and Brutes; and this is of two Kinds, *natural* and *voluntary*: the former is what every one of the Viscera forms to itself, according to the Model of its Constellation, whence it is called the *astral Blas*; the other is impelled, and put in Motion, by the Will of Animals, and is no way connected with the upper Motion, that is, the *Blas* of the Heavens.

BLASIUS. A Martyr, whose Name *Actius* represents as effectual in making any thing, which sticks in the Throat, either come up or go down. See the Life of *AETIUS*.

BLASO, or **PLASO,** (for I am not certain which is the right) is the *Indian* Name for a Tree, otherwise called, *Arbor filiquosa trifolia Indica, flore papilionaceo, filiqua grandipilosa, unicam intus fabam continente*. The Fruit reduced to Powder, and taken internally, kills Worms. The Bark also powdered, and taken with dried Ginger in Powder, is given for the Bite of a Viper. *Rati Hist. Plant.*

BLASTEMA, βλάστημα, from βλάσσω, to germinate, signifies properly a Bud, or Off-set, or Shoot of a Plant. But it is used by *Hippocrates* to express a cutaneous Eruption or Pimple. *Foetus* seems to suspect, that it may mean a Bubo, or glandular Tumor; but I see no Reason for this Supposition.

BLATTA BYZANTINA, Offic. *Blatta Byzantia*, Schrod. 5. 325. *Blatta Byzantia sive Unguis odoratus*, Park. Theat. 1573. Ind. Med. 21. *Blatta Byzantina, Unguis odoratus*, Mont. Exot. 6. *Operculum coelacarum marinarum subrotundum vulgare*, Lang. Meth. Test. 56. *Blatta Byzantia Arabum*, Aldrov. de Exant. 346. *Operculi Conchylii & Buccini*, Rondel. de Pisc. 2. 86. **THE CONSTANTINOPLE SWEET HOOF.** *Dale.*

When exhibited internally, it renders the Belly soluble, softens the Spleen, and dissolves peccant Humours. When used externally by way of Fumigation, it restores epileptic Patients, and Women labouring under a Strangulation of the Uterus. In other Disorders its Effects are the same with those of most other testaceous Substances. *Dale Pharmacologia from Schröder.*

The common Druggists and Apothecaries apply both the Name and Virtues of the *Unguis Odoratus* or *Indicus* of the Antients, the ὄνυξ Ἰνδικός of *Dioscorides*, to the *Blatta Byzantia*, and make the same Use of it. *Amyrpus* mentions the *Unguis odoratus* in some Places under the Name of ὄνυχος Ἰνδικός, (*Onychus Indicus*) particularly in the Antidote of fifty Ingredients. And in many Places we meet with his βλάττια Βυζάντια, which, he informs us, is the Name by which the *Italians* call τὸ ὅσιν τῆς ῥινὸς τῆς πορφύρας, “the Bone of the Nose of the Purple-fish.” The Translators of the *Arabian* Authors have rendered the *Arabic* Words *adfar althabih*, which in *Latin* signify *Ungues Odorati*, or *Aromatici*, and literally express the *Greek* Denomination ὄνυξ ἀρωματίζων, by *Blatta Byzantia*, how truly we shall by-and-by examine; but our first Inquiry shall be concerning the Name.

Blatta, or *Blattea*, was the Name which the ancient *Latins* gave to a Bubble of Clay, as *Paulus* remarks out of *Festus*; afterwards it came to signify a Clot of Blood, as the Author of the old Glosses observes: *Blattea*, θρομβος ἱματός, “Blat-
“tea, a grumous Concretion of Blood;” and Use at last appropriated it to the concreted Blood or Sanies of the Purple-fish, as the forementioned Glosses also take Notice: *Blattea*, θρομβος ἱματός τῶν κογχυλίων. Hence *Blatteum*, under the Emperors of the middle Ages, signified any thing

B L A

dy'd with Purple, and *Blatta insectum*, Purple. The *Byzantine* Purple-fishes are also mentioned by the Antients, which are called *Blattæ Byzantiæ*, and by the *Greeks* of the *Constantinopolitan* Empire βλάττια Βυζάντια, whence *Anastasius* the Library-keeper, in his Lives of the Popes, often mentions *Pallia & Blattio Byzantina*. It appears then, that by the *Blattæ Byzantiæ* can be meant nothing but the *Conchyliæ Byzantia*, or *Byzantine Purple-fish*. As κογχύλιον, (*Conchylum*) as well among the *Greeks* as the *Latins*, is sometimes taken for the Flesh of an Oyster, sometimes for the Shell, so the Name of *Blatta Byzantia* has by Use been appropriated to the flinty Cover of the Purple-fish.

Consider'd therefore in this respect, the *Blattæ Byzantiæ* are a quite different thing from the *Unguis Odoratus* of the Antients, which was gather'd out of the *Indian* Marthes, and for that Reason called by the *Greeks* ὄνυξ Ἰνδικός. But *Dioscorides* tells us, that this *Indian* Onyx was like the Cover of the Purple-fish: ὄνυξ ἐστὶ πῶμα κογχυλίου, ὁμοίον τῷ τῆς πορφύρας. “The Onyx is the Cover or Lid of a Shell-fish, like that of the Purple-fish.” Let us grant then, that, on account of the Likeness, the Name of the Purple-fish is justly due, and may be given, to that *Indian* Shell-fish. All the Difficulty does not lie here, but in what *Dioscorides* properly calls the πῶμα κογχυλίου, “The Cover of the Conchylum, or Shell-fish.” All our modern Interpreters take it for the Shell of the Conchylum, because the Conchylum is empty. *Brassavolus* renders it the Crust and Shell of the Conchylum, (*Crustas & Conchas Conchyliorum*) which, I am sure, is far wide of the Truth, and the genuine Signification of the Word πῶμα. The *Greeks* call the Shell of any sort of Oyster ὄστρακον (*Ostracum*). Thus *Dioscorides* speaking of Lime: τῶν θαλαττίων κερύκων τὰ ὄστρακα, “The Shells of Sea-whelks.” Besides, that *Dioscorides* did not take the Word ὄνυξ, which, he says, is the πῶμα Conchylii, for the whole Shell, appears from his own Words towards the End of the Chapter, where he says, that “The Conchylum calcined produced the same Effects as the Purple-fish and Whelk,” αὐτὸ δὲ τὸ κογχύλιον καὶ ἐν πᾶσι ὅσα καὶ ἡ πορφύρα καὶ ὁ κερύξ. Therefore the ὄνυξ, *Unguis*, is a Part of the Conchylum, not its whole Inclosure or Shell. The *Arabians* took it right. *Avicenna*'s Words, *adfar althabih*, by which he expresses the ὄνυχος ἀρωματίζων of *Dioscorides*, are rendered by *Frusta vel Fragmenta similia Unguibus*, “Bits or Fragments resembling Nails;” for this is the Sense used by him in the plural Number, which in a very ancient Glossary is expounded by *Concisio, Incisio, Decisio, Comma, Morsum*, “Concision, Incision, Decision, Fragment, Bit.” In the same Glossary *Mukatha* is explained by *decerptum*, “cropt,” what is cropt or cut off from an entire Body. So here ὄνυξ is to be taken for a Piece cut off from the Conchylum, and for a Part of it, not for the whole Shell; and this is the πῶμα κογχυλίου of *Dioscorides*, which now comes to be explained.

In Vessels of a long Neck, and narrow Mouth, that which closes the Summit of the Mouth, by which Liquors are poured in and out, is called in *Latin* *Operculum*, in *Greek* πῶμα, “a Cover.” *Severus Sulpitius*, from its Figure, calls it *Umbo*, “a Buckler.” In every Vessel also which has a wide Mouth, what covers the Opening goes by the Name of πῶμα: thus we have πῶμα χύψας, πῶμα ἀρίδης, “the Cover of a Pot, the Cover of a Well.” The Purple-fish, Whelk, and other Fish of that kind, which the *Greeks* call στρομβώδη, turbinated, or wreathed, may, in some measure, be likened to Vessels with a narrow Mouth; for they have but one Perforation, through which they put forth their Tongue, and take their Food. They have also a sort of a Cover, at the Part where the Neck is situated, under which they thrust out their Tongue to feed, and draw it back as they please. This is called by *Dioscorides* πῶμα, by *Aristotle* ἐπικάλυμμα (*Epicallumma*), who thus speaks of the Purple-fish; ἔχει δὲ καὶ ἀντὶ καὶ ὁ κερύξ τὰ ἐπικάλυμματα καὶ τὰ ἀντὰ, καὶ τὰ ἄλλα τὰ στρομβώδη ἐκ γενέσεως παῖτα νυμῶσαι δ' ἐξείρεται τὴν καλημένην γλῶτταν ὑπὸ τὸ κάλυμμα. “This Fish the Whelk, and all others of the
“turbinated Species, are furnished with Covers alike situated,
“under which they thrust out what is called their Tongue,
“and so feed.” Nothing can be expressed plainer. The *Calumma*, κάλυμμα, is the same as the *Poma*, πῶμα, which belongs to the Purple-fish, Whelks, and other turbinated Kinds, among which is comprehended the *Indian* sweet-scented Conchylum, which resembles the Purple-fish, and whose Cover is called ὄνυξ, *Unguis*, from its resembling in Shape and Whiteness a Man's Nail. In the Purple-fish, this Cover is what we properly call *Blatta Byzantia*, because out of that Part is taken the *Blatta*, that is, the Part which is used in Dying. *Pliny* writes, that it lies in the middle of the Jaws of the Purple-fish. *Aristotle*, ἀνὰ μισοῦ τετραχύλου καὶ ῥύκανος, “betwixt the
“Neck and the Excrement.” Hence *Blatta* came to be used for the Cover itself, which is the πῶμα that the latter *Greeks* called ὅσιν τῆς ῥινὸς τῆς πορφύρας, “the Bone of the Nose of the Purple-fish;” and sometimes ὅσιν τῆς πορφύρας, “the Bone of the Purple-fish;” which must be understood of this Bone, which serves for a Cover to the Shell of the Purple-fish.

Serapion,

Serapion, Cap. 433. treating of the Parts of the Purple-fish, mentions, among the rest, *Adfer*, that is, *Ungues*; and says, they are Covers by which they are closed within their Perforation. The Translator gives this Chapter the Title of *Blattæ Byzantiæ*, in which he is right; for these Covers of the Purple-fish are properly the *Blattæ Byzantiæ*, which were collected at *Byzantium*. *Serapion* has another Chapter on the *Ungues Odorati*, which were the Covers of the *Indian* Shell-fish that resembled the Purple-fish; and are, by the Interpreter, wrongly expounded by the *Blattæ Byzantiæ*; whereas the *Blattæ Byzantiæ* is the *Unguis* of the Purple-fish, and has nothing of an aromatic Smell in it. But the *Unguis Odoratus* was the Cover of the *Indian* Shell-fish, and was commonly used with other sweet-scented Ingredients in Suffumigations. *Myrepsus*, on *Suffumigations*, often mentions them, and calls them *ουγκας μεγάλας & μικράς*, “the great and small Ungues,” because there were two Sorts of them. The larger were brought from *Arabia*, and the smaller from *Babylon*, according to *Dioscorides*: *Myrepsus* sometimes calls them simply *ουγκας*, *Ungues*; sometimes *ουγκας ἰνδικές*, which must be understood of these *Ungues*; but when he calls them *ὅσον τὴν ῥινὴν τὴν πορφυρεάς*, “the Bone of the Nose of the Purple-fish,” you are to take it for the Cover of that Fish which was call’d *Blattæ Byzantiæ*, by the *Greeks* *βλάττιον πορφυρεάς*, and had nothing of a sweet Scent, but rather stunk when it was handled; both Sorts, however, went commonly under the Name of the *Blattæ Byzantiæ*. *Alpagus*, in his Lexicon, writes, that the *Blattæ Byzantiæ* is the Cover of a certain Shell-fish found in the *Red Sea*; and that this Cover was in the very Mouth of these Shell-fishes, and was open’d and shut at the Pleasure of the included Animal; that it was call’d *Blattæ Byzantiæ*; and that he had often seen them adhering to their Shells. Nothing better could be said for the Explication of the *Poma* and *Calomma*, as well in Purple-fish and Whelks, as in the sweet-scented *Indian* Shells.

Ουγκ was also a Name among the *Greeks* for a kind of Oyster, otherwise call’d *σολὴν & αὐλὴν*, “*Solen* and *Aulus*.” *Pliny* calls them *Ungues*, *Lib. 9. Cap. 31. Idem*, of Oysters, *Ungues a similitudine humanorum ungium dictæ*, “call’d *Ungues* from their resembling human Nails.”

I wonder that *Dioscorides* should tell us, that this *Indian* Conchylum was found in the dried Marshes of *India*, which produce Nard, and that this was the Cause of its Fragrancy, because it was fed with Nard; and yet, in reckoning the Kinds of this Conchylum, should only mention the *Babylonian*, and the *Arabian* which comes from the *Red Sea*. If it be found in the nardiferous Marshes of *India*, why should he make one Kind come from *Babylon*, and another from the *Red Sea*? Nard, indeed, is not produced in *Babylon*, nor in the *Red Sea*, but in *India* about the *Ganges*; whence it is call’d *Γαγγητὰν ἰνδ.*, “*Gangetic Nard*.” But what he says about the nardiferous Marshes, is Matter of Laughter; for what Author among the Antients ever told us, that *Indian* Nard grew in Water and Marshes? *Dioscorides* himself tells us, that it was produced on a Mountain of *India*; he mentions indeed another Sort, which grew “in watery Places,” *ἐν ὑδατοῦσιν*. But it is one thing to grow in moist and well-water’d Places, and another thing to spring up in the Middle of Marshes and standing Waters. *Garcias* informs us, that Nard is seldom found in *India* of spontaneous Growth, but that it is always propagated by Culture. *Dioscorides* compiled his Chapter of the *Unguis Odoratus* from two Authors, without considering that they contradicted one another; for it is impossible to reconcile the collecting the *Unguis Odoratus* of the Conchylum from the Marshes of *India*, with the Account of two Kinds of it, one coming from the *Red Sea*, and another from *Babylon*, differing in Colour and Bigness. Nor shall I regard what may possibly be pretended, that the *Indian* Ungues may come in Ships by Way of the *Red Sea*, and to *Babylon* by Land. This will by no means bring him off; for he mentions only one Kind in the Beginning, which was found in *India*, and assigns the Cause of its Fragrancy to its feeding on Nard: Now it is certain, that Nard grows no-where but in *India*; besides, he every-where distinguishes the *Indian* Species from the *Arabian*.

Upon the Whole, it is evident, that the *Unguis Odoratus* of the *Arabians* was the same with the *Ουγκ ἰνδικὴ* of the Antients; which, however, was not brought out of *India*, but from *Babylon* and the *Red Sea*; and that what *Dioscorides* tells us about the nardiferous Marshes, and the aromatic Conchylia there collected, is mere Romance. It appears also, that the *Blattæ Byzantiæ* are properly a different Thing from the *Ungues Odorati*, tho’ their Names are commonly confounded; for the former are the Covers of the *Byzantine* Conchylum, or Shell-fish, which were formerly used to dye a Purple; but the *Ungues Odorati* belonged to the *Arabian* Conchylum, which was like the Purple-fish. *Salmasius de Homonym. Hyl. Iatr. Cap. 98.*

In the *Philosophical Transactions* I find the following Remarks of Dr. Lister upon the *Blattæ Byzantiæ*, in Answer to a Quere of Mr. Dale’s.

I take the *Blattæ Byzantina* to have succeeded the *Unguis*

Odoratus, and to have been brought into the Shops in its Place.

I conjecture, therefore, that the true *Unguis Odoratus* was something like the half of a *Pectunculus Fluvialis*, so common in the River *Thames*, of the Bigness and Thickness of a Thumb-nail, and that for these Reasons:

1. That the *Unguis Odoratus* seems to have been a fresh-water Bivalve or Muscle, for that they staid till the Lakes on the River *Ganges* were dried up before they gather’d them. Now Bivalves are ever buried in Sand and Mud, and never rise up, and swim about, and float, as the Turbinate Snails do; to which latter only the Operculum belongs, and which therefore were always, and easily, to be caught.

2. *Dioscorides* calls this Snail *Conchylum*, and by that general Name distinguishes it from all the other Sorts, concerning which he treats in several Chapters; which, tho’ in general it takes in both Kinds, as well Turbinate as Bivalve, yet it does more particularly denote a Concha or Bivalve.

3. The *Onyx* is expressly reckon’d by *Pliny* amongst the Bivalves. For (*L. 32. C. 11.*) he makes all these synonymous, *Solen, five Aulos, five Donax, five Onyx, five Dactylus*. And again, more particularly, (*Lib. 2. Cap. 61.*) he says, *Ex Concharum genere sunt Dactyli, ab Humanorum Unguium similitudine appellati*; so that, in all Probability, the *Onyx Odoratus*, brought more antiently out of the fresh-water Lakes about *Ganges* in *India*, was not unlike the common *Onyx* of the *Mediterranean*, which was of the *Solen* Kind.

Whatever the *Blattæ Byzantiæ* of our Shops is, which has certainly nothing of the Characters of the antient Aromatic Unguis; and which, in all Probability, was lost upon the Account of the difficult Passage from *Ganges* into *Europe*; I lament its Loss, which I have Reason to believe was a good Medicine, from its strong aromatic Smell; which is much wanting in our testaceous Powders, of which this was one of the Number, so much used, and that not without good Reason now-a-days, which are all very flat and insipid.

BLATTA, Offic. Aldrov. de Insect. 499. *Blatta fatida*, Mouffet. Insect. 138. Charlt. Exer. 49. Jous. de Insect. 82. Mer. Pin. 202. *Scarabæus imperialis tardipes*, Pet. Gazophylac. Nat. & Art. Tab. 27. Fig. 7. THE SLOW-LEGG’D BEETLE. Dale.

The Inside of the *Blatta*, which is found in Bake-houses, bruised or boiled in Oil, and dropp’d into the Ears, cures the Pains thereof. *Dioscorides, Lib. 2. Cap. 38.*

Dale has, by Mistake, attributed the Virtues of the *Blatta* or Beetle found in Bake-houses, which is a very nimble Insect, to the slow-leg’d Beetle.

BLATTARIA, Offic. BLATTARIA LUTEA, J. B. 3. 874. Raii Hist. 2. 1096. Synop. 3. 288. *Blattaria vulgaris lutea*, Chab. 495. *Blattaria lutea, folio longo laciniato*, C. B. Pin. 240. Tourn. Infl. 147. Elem. Bot. 123. Boech. Ital. A. 147. Buxb. 40. Rupp. Flor. Jen. 195. *Blattaria Plinii*, Ger. 633. Emac. 776. Mer. Pin. 16. *Blattaria major, sine luteo, vel Blattaria Plinii*, Merc. Bot. 24. Phyt. Brit. 16. *Blattaria lutea minor seu vulgaris*, Park. Theat. 64. *Blattaria annua ramosa, floribus luteis, staminibus purpureis*, Hill. Oxon. 2. 489. MOTH-MULLEIN.

Authors have said very little with respect to the Medicinal Virtues of this Plant, but inform us, that it is possess’d of the same as the Verbascum.

There is an Herb like Mullein, and often taken for it; but it has more Stalks, a Leaf not so white, and a yellow Flower. When thrown abroad, it gathers Moths (*Blattas*), and therefore at Rome they call it *Blattaria*. *Pliny.*

Ray, besides this, mentions the following Species of *Blattaria*:

Blattaria magno flore, C. B. J. B. *Flore ampla*, Ger. *Blattaria lutea major five Hispanica*, Park. *Blattaria flore caruleo vel purpureo*, J. B. *Flore purpureo*, Ger. Park. *Purpurea*, C. B. *Blattaria perennis, flore albo seu choleti coloris*, Moris. *Blattaria lutea odorata*, Park. *Blattaria pilosa Cretica, five Arctos quorundam*, J. B. *Verbascum humile Creticum laciniatum*, C. B. *Verbascum Brassica folio*, Col.

Blattaria Cretica incana, rotundo laciniato folio, Park. This is the *Arcturus Creticus Belli*.

Ab hac diversum, C. Bauhinus. *Eumq; secutus*, Parkinsonus. *Verbascum suum foliis subrotundis, flore Blattariæ, quod in Prodruma sic describit.*

Blattaria Cretica spinosa, Park. *Leucium Creticum spinosum*, Clus. J. B. *Creticum spinosum incanum luteum*, C. B. *Galassivida Cretensium belli*. *Leucium spinosum cruciatum*, Alp. *Spinosum Creticum*, Ger. Emac.

Blattaria incana multipida, Bocconi.

BLECHNON.

Blechnon minus, pinnulis integris. *Felix querna*, C. B. Pin. 358. *Felix ramosa minor*, J. B. 3. 741. *Felix arbuta*, Træg. 538. THE LESSER BRANCHED FERN.

It grows in shady Places, but very rarely.

C. Baubine had no Reason to refer *Tabernamontanus's Filicula petraea fœmina*, ii. to this Species; we must rather, with *J. Baubine*, refer it to the *Filicula petraea fœmina* iv. of this Author; therefore we ought not to distinguish this from the *Filix ramosa minor, pinnulis dentatis*, Pin. *C. Baubine* was mistaken when he said, that the *Pteridion masculum Cordi* was the same with this; for *Cordus* compares it to the unbranch'd Male Fern, and he finds in it no other Difference than that of Bigness. *J. Baubine* knew these Species better than his Brother, who has separated from his *Filix querna* the *Filix pumila saxatilis*, Clus. Those who examine *Clusius's* Figure well, will not distinguish it from that of *Tragus*. Therefore this Plant is thrice repeated in the *Pinax*, under the Names of *Filix querna*, of *Filix ramosa minor, pinnulis dentatis*, and of *Filix saxatilis ramosa, nigris maculis punctata*. *Pena* and *Lobel* have given a sorry Figure of it. That of *Camerarius* seems to be but a Copy of *Matthiolus's* Figure. *Martyn's Tournefort*. See *FILIX*.

BLECHROS, βληχερός. Weak, slight. Βληχερός πυρετός, in *Lib. 5. Epid.* is a slight Fever, and opposed to πεικαίσις, a burning (Fever), *Aph. 17. Lib. 6. Sect. 1.* And βληχερός σφυγμός, a weak low Pulse, is opposed to ὀξύς, a smart strong one, *Lib. 1. περὶ γυναικ.* Βληχερός, in *Galen's Exegesis*, is expounded a kind of Pulse, otherwise written βλήχιον.

BLEMA, βλήμα. See *INTRITUM*.

BLENNA, *Blenna*, βλέννα, μύξα, κορύζα, in *Hippocrates*, is a thick Phlegm and Mucus flowing from the Brain through the Nostrils, and shewing Signs of a beginning Concoction, as *Galen* explains him in several Places of his Works. He says also, that φλέγμα (Phlegm) is by some call'd βλέννα, or βλίνα. It is also read βλάινα, in *Hippocrates's* second Book of Diseases: "If there be an Eruption of Water or Mucus [βλαίνα] by the Nostrils, there is a Solution of the Disease." It is also written πλέννα, and expounded by μύξα in *Galen's Exegesis*. *Hesychius* explains βλέννης by νόθος, and μωρός, a Blockhead, or a Fool, and as it were mucous, from the excessive Humidity of his Brain. *Blennus* also, in *Plautus*, has the same Signification, as *Festus* observes. Βλέννα, in *Erotian*, is the Name of a Fish, which he also calls βλάξ or βλακίς.

BLENNUS, βλέννη, βλίνη, βλινός, in *Suidas* βάλων. A Fish found in shallow Waters, of little or no Value, which is denoted by its Name, signifying mucous, as being of a soft, excrementitious, and insipid Flesh. It is described by *Aldrovandus*.

BLEPHARA, βλέφαρον. The Eyelids. See *PALPERRÆ*.

BLEPHARIDES, βλέφαρίδες. The Hairs on the Extremities of the Eyelids, as expounded by *Hesychius* and *Celsus*. In *Hippocrates's Coac.* it is put for the Eyelids, as βλέφαρίδων καμπτύλας there signifies a Retortion of the Eyelids. *Cælius Aurelianus, Lib. 4. Cap. 3. Tard. Pass.* renders the Greek βλέφαρικὰ, *Palpebraria (Collyria)*.

BLEPHAROXYSTUM, βλέφαροξύστον, from βλέφαρον, an Eyelid, and ξύω, to scrape, shave. A Surgeon's Instrument for scraping or scarifying the Eyelids.

There have been various Forms of Instruments for these Purposes. *Hippocrates* seems to have used a Thistle, or some prickly Herb, such as the *Atractylis*. Others of the ancient Physicians invented an Instrument of Iron or Steel, not unlike a fine Rasp, delineated *Tab. 37. Fig. 5.* and shaped like a Spoon; and with this they used to scrape the Inside of the Eyelids till the Blood flow'd, as we are told by *Celsus* and *Aegineta*, the latter of whom calls this Instrument *Blepharoxyston* [Eyelid-scraper]; the other calls it *Asperatum Specillum*, the Rasp-like Probe. Some used that rough Herb which the Botanists call'd *Equisetum majus*; others, among whom was *Celsus*, the Leaves of the Fig-tree; others a Pumice-stone, or the Bone of a Cuttle-fish, or any other Thing that seem'd most convenient for the Purpose. *Heister*.

BLESTRISMUS, βληστισμός, from βάλλω, to toss, in *Hippocrates*, is a disorderly Jaclation, or Tossing, and Restlessness of the Body, by which it is perpetually disturb'd, and thrown out of one Posture into another. It is also call'd βίπασμος, which is a Word used in several Places of the *Epidemics*. *Aretæus* uses βληστίζεσθαι to express the disorderly Tossing and Tumbling of a Person in a Phrensy.

BLETA, *White*, is an Epithet for milky Urine, proceeding from diseased Kidneys; and is reckon'd among the Causes of a Phthisis by *Paracelsus, de Tartaro, Tract. 3. Cap. 3. Cæsius*.

BLETI, βλήτοι, from βάλλω, to strike. Struck. So the Antients call'd those who were suddenly seiz'd with a Suffocation, Stertor, and Difficulty of Breathing, from an Inflammation of the Pleura, the Side being mark'd with black and blue Spots, as from Blows; for which Reason they were call'd *Bleti*, struck or smitten, and *Syderati*, Planet-struck. *Hippocrates de Rat. Viâ. in Morb. acut. and Coac.* In *Lib. 1. περὶ γυναικ.* an Ecchymum, ἐκχύμα, is describ'd to be ὁ τὸ παιδίον βλητὸν γυναικὸς ἐκβάλλει, "what expels the kill'd or dead Child." Βλήτος

is expounded in *Hesychius* by ἀπόπληξις, καὶ ὁ ὑπὸ τῆς ὀξείας νευρημάτων αἰφνιδίως τελευτῆς, "one seiz'd with an Apoplexy, or that dies suddenly of some acute Disease." And βλήτος in *Varinus*, is *Syderatus*, labouring under an Apoplexy, or Stupor of the Body.

Βλήτης, in *Hippoc. Lib. 2. περὶ γυναικ.* is an Herb of the Figure of a Tongue. And you meet with βλήτον in *Theophrastus, Hist. Plant. Lib. 7. Cap. 1.* and βλήτιον in *Dioscorid. Lib. 2. Cap. 143.* for βλήτον.

BLICARE. Prepar'd Præfil, as defin'd by *Rulandus*; but I do not know what Præfil is.

BLICHODES, βλιχῶδες, is expounded, by *Epicles* in *Erotian*, by τὸ λευκασμῶν μετὰ γλοιώδους ὑγροσίας ἀκαθάριε, "turgid with some impure viscous Humour." *Euphorion* explains it by τὸ ἐκπεπαισμενὸν καὶ καθήξημεν, "express'd and dried." *Bacchius* and *Lyfimachus*, in the same Author, read βλιχῶδες with a π, and explains it by ἁετὶσυρμῶν, "smooth'd," as much as to say, full distended, and void of Folds or Wrinkles. *Erotian* adds, that some for βλιχῶδες read γλιχῶδες, glutinous or viscous, which agrees very well with the Exposition of *Epicles*. Βλιχῶδες is expounded by *Suidas*, out of *Hippocrates*, and also by *Hesychius*, τὸ λευκασμῶν καὶ καθάρων, "decorticated and pure."

BLINCTA is explain'd, by *Rulandus*, *Terra rubra*, red Earth.

BLITUM, *Blite*. A sort of Herb.

This Herb is cultivated in Gardens allotted for Pot-herbs, and is used in Food. It affords little Nourishment, and generates a very bad Blood. *Plin. Lib. 20. Cap. 22.* has these Words: "Blitum seems to be without any Virtues, without any Taste or Acrimony; for which Reason the Poet *Menander* makes cold and indifferent Husbands compare their Wives to it, by way of Contempt." It is prejudicial to the Stomach; and raises such a Commotion in the Intestines, as, in some, to excite a Cholera. These Verses of *Eoban. Hest. Lib. de Bona Valetudine*, must not, on this Occasion, be forgotten:

*Ignavum sine honore Blitum, sine viribus estur,
Hoc solo: l'entrem quod bene dejiciat.*

Galen, Lib. 2. de Alim. fac. c. 45. ranks it among the Pot-herbs without Taste; for which Reason it is so little used in the Kitchen, that it is become a Proverb of Contempt to say, that a Person is more despicable than *Blites*. Hence it also happens, that every thing of no Worth or Value is call'd *Blites*; for the Greeks call it βλίτον, as it were βλίτην, a Thing to be thrown away. *Isidorus, Lib. 17. Orig. C. 10.* is of Opinion, that *Blitum* is so call'd, as it were, from *Vilis Beta*. In *Suidas* we read, that among the Greeks the Whores were call'd βλίταιδες or βλίταις, *Blitee Uxores*. *Plautus* also speaks of *blitea* & *lutea meretrice*, that is, a most contemptible, wither'd, and insipid Whore. *Catullus* has an Expression to the same Purpose, *Non assis facis, oblitum Lupanar*: "Thou art good for nothing, thou contemptible Whore." The Greeks also, according to *Hesychius*, call'd Fools and Idiots βλίτας and βλίτενας, probably from the Greek Word βλάξ, which signifies stupid. See *Joh. Ruell. de Natura Stup. L. 1. C. 20.*

The Seeds of this Herb are good in Dysenteries, and immoderate Fluxes of the Menes; and, according to *Tabernamontanus*, the Seeds of it are beat'd like Millet in *Silesia*, and afford the common People a grateful Food. The Juice of the Herb, express'd, cures Corns of the Feet, if applied to them. A Fumigation of the Herb promotes the Menes, when stopp'd; and expels false Conceptions, and the Secundines. According to *Cass. Schwenkf. in Catal. Stirp.* the Country-people use it as a Remedy against Hemorrhages in their Cattle: And *Tabernamontanus* informs us, that its Juice, exhibited in Wine, cures the Bites of Scorpions and Spiders. *Barthol. Zorn Botanolog.*

There are many Sorts of *Blites*, the common Sort of which is thus distinguish'd.

BLITUM ALBUM, *Offic. Park. Parad. 488. Blitum album majus*, or the great white Blite, *Ger. 252. Emac. 320. C. B. 118. Tourn. Inst. 507. Hist. Oxon. 2. 599. Boerh. Ind. A. 2. 91. Dill. Cat. 164. Buxb. 40. Blitum pulchrum album majus*, *J. B. 2. 967. Raii Hist. 1. 200. GREAT WHITE BLITE*.

The common *Blite* grows to be two Foot high, with thick hollow Stalks, cloath'd with a great many Leaves, somewhat like Beet-leaves, but less, growing on long Foot-stalks, and of a thinner Texture. The Flowers consist of long Spikes, of small, molly, greenish *Flosculi*, in which lie small, round, black Seeds. The Root is pretty thick, but perishes every Year. The whole Plant has a starchy insipid Taste. It is planted in Gardens, and flowers in July.

The Leaves, which are only used, and those but seldom, are much of the Nature of *Arrache*, being cooling and emollient; and are sometimes put into Clysters. *Miller's Bot. Off.*

Blites are eaten among other Greens; and are good for the Belly, participating of no purgative Quality. *Dioscorides, Lib. 2. Cap. 143.*

Another

Another Species of this Plant is the
BLITUM RUBRUM, Offic. Park. Parad. 489. *Blitum rubrum majus*, or the Great Red Blite, Ger. 252. Emac. 320. Raii Hist. 1. 200. C. B. Pin. 118. Tourn. Inst. 507. Elem. Bot. 407. Boerh. Ind. A. 2. 91. Hist. Oxon. 2. 599. *Blitum pulchrum rectum magnum rubrum*, J. B. 2. 966. Buxb. 40. *Blitum*, Chab. 304. RED BLITES.

The medicinal Virtues of this are much the same as those of the preceding.

BLITUM, Cod. Med. 21. *Blitum sylvestre spicatum*, Tourn. Inst. 507. Herb. Par. 399. Mart. Hist. 106. Vaill. Bot. Par. 21. *Blitum minus album*, C. B. Pin. 118. Hist. Ox. 2. 599. J. B. 2. 967. Raii Hist. 1. 200. Boerh. Ind. A. 2. 91. Ger. 252. Emac. 321. *Blitum album sylvestre minus*, Park. Theat. 752. SMALL WHITE BLITE.

Camerarius is the only Author who has given a good Figure of this Plant; it is so like the *Blitum rubrum minus*, that it is impossible to distinguish them without the Fruits. This Species is quite loaded with them, but they are not only placed in the Bosoms of the Leaves, but form also a very considerable Spike at the Top of the Stalks; and, besides, each Fruit is a sort of membranous greyish Bladder, reddish, oval, pointed, flat, a Line long: It does not open transversely, like the *Blitum rubrum minus*, but bursts like a Bladder which is press'd, and lets out a very small, black, smooth; shining Seed, shap'd like a Lentil.

Tournesfort takes Notice of another Species of *Blitum*, which is the

Blitum rubrum minus, C. B. Pin. 118. J. B. 2. 967. *Blitum rubrum supinum*, Lib. Icon. 250. *Amaranthus sylvestris & vulgaris*, Inst. THE SMALL WILD RED BLITE. It is often found on Dughills.

J. Bauhine and *Lobel* have given good Figures of this Plant. That of the *Blitum rubrum minus*, Cam. Epit. 235. agrees better with the *Blitum album minus*, C. B. Pin.

The Root of this Plant is whitish, sometimes purple, about half a Line long, four or five Lines thick at the Neck, divided into capillaceous Fibres. The Stalks are procumbent, branch'd, about a Foot long, chanel'd, two or three Lines thick, reddish, full of Juice, adorn'd with alternate Leaves, resembling those of Pellitory, about two Inches long, taking in the Tail, which is very slender, and almost as long as the rest of the Leaf. This Leaf is a bright-green, sometimes having purplish Edges, seven or eight Lines broad, divided into two equal Parts, by a Rib which extends itself from one End to the other, and forms little crooked Veins, which lose themselves in the Edge. Out of the Bottom of each Leaf sometimes proceed others, which are much smaller; these Bosoms are fill'd with many Flowers, growing upon one another in rounded Clusters, three or four Lines in Diameter. Each Flower usually consists of three very narrow, pointed, gutter'd Leaves, one Line long, whitish, with a greenish Back: From the Middle of the Flower arises an oval-pointed Pointal, encompassed with three very slender Chives, which are scarce a Line long, and sustain each a yellowish Summit. This Pointal afterwards becomes an oval, flat, membranous, reddish Capsule, one Line long, terminated by a little Thread. It is composed of two Pieces, placed one upon the other, and opening transversely. In each Capsule is one Seed, almost round, black, smooth, shining, shap'd like a little Lentil.

We have no good Figure of this Plant; for that of *J. Bauhine* has its Leaves too obtuse, and represents the preceding Species better; and that of the *Blitum rubrum minus*, Cam. which agrees better with it in the Leaves, makes a Spike of Flowers, which we do not see in our Plant. *Lobel's* Figure has the very same Fault. *Vaill. Martyn's Tournesfort*.

BLITYRI. Βλίτυρι. A fictitious Word, with no Signification annex'd to it, but proverbially used by *Galen*; as is also another Word, *Scindapsus*, σκινδαψος, to ridicule the Vanity of coining new Terms. *Gal. de Diff. Puls. Lib. 3. Cap 1. & Meth. Med. Lib. 2. Cap. 7.*

BLUMATI terreum. A glaz'd Vessel. *Johnson*.

BOA, Jonst.

Is an aquatic Serpent of a prodigious Size, which follows the Herds of Oxen, from whence it takes its Name; it sucks the Cows Teats, for it loves Milk very well. It is found sometimes in *Calabria*. One of these was kill'd in the Reign of the Emperor *Claudius*, in the Belly of which they found a Child, which it had swallowed whole. The Bite causes an Inflammation of the Part bit. They say that this Serpent is sometimes so big, that it can swallow a whole Ox, which is not to be credited. *Lemery des Drogues*.

BOANTHEMON, βoανθημον, is expounded in *Galen's* Exegesis by τὸ βεβθαλμον, (*Buphthalmum*) which, he says, is also call'd χρυσανθημον, *Chrysanthemum*. *Poesius*.

BOAX. See BOORS.

BOCCA. The large Mouth or Opening of a Glass-house Furnace.

BOCCARELLA. A small Hole, or Mouth, one of which is on each Side the *Bocca* of a Glass Furnace, lying almost horizontally.

zontally with it. Out of these the Workmen take colour'd or finer Metal from the Piling-pot.

BOCCONIA. A Plant so call'd from *P. Boccone* of *Sicily*, who has publish'd several curious Books of Botany. It has a Flower, consisting of one Leaf; from the Middle arises the Pointal, which afterwards becomes an oval-shap'd pointed Fruit, which is full of Juice, each containing one round Seed. We have but one Species of this Plant, which is a Native of *Jamaica*, and call'd by Sir *Hans Sloane*, in his Nat. Hist. *Chelidonium majus arborescens, foliis quercinis*. I find no medicinal Virtues attributed to it.

BOCHETUM. The second Decoction of Lignum Sanctum, Sarsaparilla, China-root, and other Sudorifics. *Castellus*.

BOCIA. A Glass Vessel, firmly clos'd, and shap'd with a round Belly, and long Neck, about half a Foot in Diameter. It is otherwise call'd *Ovum*, *Sublimatorium*, *Urinale*, and *Cucurbita*. This must not be touched with the cold Hand in time of working, for fear of breaking it. *Castellus*.

BOCIUM. The same as BRONCHOCELE, which see.

BODAGI is defin'd by *Rulandus*, Aliud Vas.

BODID. An Egg. *Idrm*.

BOE, βοι. See CLAMOR, and ANAPHONESIS.

BOERHAAVE. The Figure this illustrious Physician made whilst alive, and the Reputation of his Work, now he is no more, demand some Account of his Life and Writings.

Herman Boerhaave was born on the last Day of December 1668. about One in the Morning, at *Poorhout*, a Village two Miles distant from *Leyden*: His Father, *James Boerhaave*, was Minister of *Poorhout*, of whom his Son, in a small Account of his own Life, has given a very amiable Character, for the Simplicity and Openness of his Behaviour, for his exact Frugality in the Management of a narrow Fortune, and the Prudence, Tendernefs; and Diligence, with which he educated a numerous Family of nine Children. He was eminently skill'd in History and Genealogy, and well versed in the *Latin*, *Greek*, and *Hebrew* Languages.

His Mother was *Hagar Daelder*, a Tradesman's Daughter of *Amsterdam*, from whom he might, perhaps, derive an hereditary Inclination to the Study of Physic, in which she was very inquisitive, and had obtained a Knowledge of it not common in Female Students.

This Knowledge, however, she did not live to communicate to her Son; for she died in 1673, ten Years after her Marriage.

His Father, finding himself encumber'd with the Care of seven Children, thought it necessary to take a second Wife, and, in July 1674. was married to *Eve du Bois*, Daughter of a Minister of *Leyden*, who, by her prudent and impartial Conduct, so endear'd herself to her Husband's Children, that they all regarded her as their own Mother.

Herman Boerhaave was always design'd by his Father for the Ministry, and with that View instructed by him in Grammatical Learning, and the first Elements of Languages; in which he made such a Proficiency, that he was, at the Age of eleven Years, not only Master of the Rules of Grammar, but capable of translating with tolerable Accuracy, and not wholly ignorant of critical Niceties.

At Intervals, to recreate his Mind, and strengthen his Constitution, it was his Father's Custom to send him into the Fields, and employ him in Agriculture, and such kind of rural Occupations, which he continued thro' all his Life to love and practise; and, by this Vicissitude of Study and Exercise, preserv'd himself, in a great measure, from those Distempers and Depressions, which are frequently the Consequences of indiscreet Diligence, and uninterrupted Application; and from which Students, not well acquainted with the Constitution of the human Body, sometimes fly for Relief to Wine instead of Exercise, and purchase temporary Ease at the Hazard of chronical Distempers.

The Studies of young *Boerhaave* were, about this Time, interrupted by an Accident, which deserves a particular Mention, as it first inclin'd him to that Science, to which he was by Nature so well adapted, and which he afterwards carried to so great Perfection.

In the twelfth Year of his Age, a stubborn, painful, and malignant Ulcer, broke out upon his Left Thigh; which, for near five Years, defeated all the Art of the Surgeons and Physicians, and not only afflicted him with most excruciating Pains, but expos'd him to such sharp and tormenting Applications, that the Disease and Remedies were equally insufferable. Then it was that his own Anguish taught him to compassionate that of others, and his Experience of the Inefficacy of the Methods then in Use incited him to attempt the Discovery of others more certain.

He began to practise at least honestly, for he began upon himself; and his first Essay was a Prelude to his future Success; for, having laid aside all the Prescriptions of his Physicians, and all the Applications of his Surgeons, he at last, by fomenting the Part with Salt and Urine, effected a Cure.

That he might, on this Occasion, obtain the Assistance of Surgeons with less Inconvenience and Expence, he was brought by his Father, at Fourteen, to *Leyden*, and placed in the fourth Class of the public School, after having been examined by the Master: Here his Application and Abilities were equally conspicuous. In six Months, by gaining the first Prize in the fourth Class, he was raised to the fifth; and in six Months more, upon the same Proof of the Superiority of his Genius, rewarded with another Prize, and translated to the sixth; from whence it is usual in six Months more to be removed to the University.

Thus did our young Student advance in Learning and Reputation, when, as he was within View of the University, a sudden and unexpected Blow threaten'd to defeat all his Expectations,

On the 12th of *November* in 1682. his Father died, and left behind him a very slender Provision for his Widow and nine Children, of which the eldest was not yet seventeen Years old.

This was a most afflicting Loss to the young Scholar, whose Fortune was by no means sufficient to bear the Expences of a learned Education, and who therefore now seem'd to be summoned by Necessity to some Way of Life more immediately and certainly lucrative; but with a Resolution equal to his Abilities, and a Spirit not to be depress'd or shaken, he determin'd to break thro' the Obstacles of Poverty, and supply by Diligence the want of Fortune.

He therefore ask'd and obtain'd the Consent of his Guardians to prosecute his Studies as long as his Patrimony would support him, and, continuing his wonted Industry, gained another Prize.

He was now to quit the School for the University, but, on account of the Weakness yet remaining in his Thigh, was, at his own Intreaty, continu'd six Months longer under the Care of his Master, the learn'd *Wynschoten*, where he once more was honour'd with the Prize.

At his Removal to the University, the same Genius and Industry met with the same Encouragement and Applause. The learned *Triglandius*, one of his Father's Friends, made soon after Professor of Divinity at *Leyden*, distinguish'd him in a particular manner, and recommended him to the Friendship of Mr. *Van Appen*, in whom he found a generous and constant Patron.

It became now a diligent Hearer of the most celebrated Professors, and made great Advances in all the Sciences, still regulating his Studies with a View principally to Divinity, for which he was originally intended by his Father; and for that Reason he exerted his utmost Application to attain an exact Knowledge of the *Hebrew* Tongue.

Being convinc'd of the Necessity of mathematical Learning, he began to study those Sciences in 1687. but without that intense Industry with which the Pleasure he found in that kind of Knowledge induc'd him afterwards to cultivate them.

In 1690. having perform'd the Exercises of the University with uncommon Reputation, he took his Degree in Philosophy; and, on that Occasion, discuss'd the important and arduous Question of the distinct Natures of the Soul and Body, with such Accuracy, Perspicuity, and Subtlety, that he entirely confuted all the Sophistry of *Epicurus*, *Hobbes*, and *Spinoza*, and especially rais'd the Character of his Piety and Erudition.

Divinity was still his great Employment, and the chief Aim of all his Studies. He read the Scriptures in their original Languages, and, when Difficulties occur'd, consulted the Interpretations of the most ancient Fathers, whom he read in Order of Time, beginning with *Clement Romanus*.

In the Perusal of these early Writers, he was struck with the profoundest Veneration for the Simplicity and Purity of their Doctrine, the Holiness of their Lives, and the Sanctity of the Discipline practis'd by them; but, as he descended to the lower Ages, he found the Peace of Christianity broken by useless Controversies, and its Doctrines sophisticated by the Subtleties of the Schools. He found the holy Writers interpreted according to the Notions of Philosophers, and the Chimeras of Metaphysicians adopted as Articles of Faith. He found Difficulties rais'd by idle Curiosity, and somented to Bitterness and Rancour. He saw the Simplicity of the Christian Doctrine corrupted by the private Notions of particular Parties, of which each adhered to its own Philosophy, and Orthodoxy was confined to the few in Power.

Having now exhausted his Fortune in the Pursuit of his Studies, he found the Necessity of applying to some Profession, that, without engrossing all his Time, might enable him to support himself; and, having obtain'd a very uncommon Knowledge of the Mathematics, he read Lectures in those Sciences to a great Number of young Gentlemen in the University.

At length, his Propension to the Study of Physic grew too violent to be resisted; and, tho' he still intended to make Divinity the great Employment of his Life, he could not deny himself the Satisfaction of spending some Time upon the medicinal Writers, for the Perusal of which he was so well qualified by his Acquaintance with the Mathematics and Philosophy.

But this Science corresponded so much with his natural Genius, that he could not forbear making that his Business, which

he intended only as his Diversion; and still growing more eager, as he advanced further, he at length determin'd wholly to master that Profession, and to take his Degree in Physic, before he engaged in the Duties of the Ministry.

It is, I believe, a very just Observation, that Mens Ambition is generally proportion'd to their Capacity. Providence seldom sends any into the World with an Inclination to attempt great Things, who have not Abilities likewise to perform them. To have form'd the Design of gaining a competent Knowledge in Medicine by way of Digression from Theological Studies, would have been little less than Madness in most Men, and would have expos'd them to Ridicule and Contempt. But *Boerhaave* was one of those mighty Capacities to whom scarce any thing appears impossible, and who think nothing worthy of their Efforts but what appears insurmountable to common Understandings.

He began this new Course of Study by a diligent Perusal of *Vesalius*, *Bartholine*, and *Fallopian*; and, to acquaint himself more fully with the Structure of Bodies, was a constant Attendant upon *Nuck's* public Dissections in the Theatre, and himself very accurately inspected the Bodies of different Animals.

Having furnish'd himself with this preparatory Knowledge, he began to read the antient Physicians in the Order of Time, pursuing his Inquiries downwards from *Hippocrates*, thro' all the *Greek* and *Latin* Writers.

Finding, as he tells us himself, that *Hippocrates* was the original Source of all medicinal Knowledge, and that all the later Writers were little more than Transcribers from him, he returned to him with more Attention, and spent much Time in making Extracts from him, digesting his Treatises into Method, and fixing them in his Memory.

He then descended to the Moderns, among whom none engaged him longer, or improved him more, than *Sydenham*, to whose Merit he has left this Attestation, *that he frequently perused him, and always with greater Eagerness.*

His insatiable Curiosity after Knowledge engaged him now in the Practice of Chymistry, which he prosecuted with all the Ardor of a Philosopher, whose Industry was not to be wearied, and whose Love of Truth was too strong to suffer him to acquiesce in the Reports of others.

Yet did he not suffer one Branch of Science to withdraw his Attention from others: Anatomy did not withhold him from the Prosecution of Chymistry, nor Chymistry, enchanting as it is, from the Study of *Botany*. He was not only a careful Examiner of all the Plants in the Garden of the University, but made Excursions, for his further Improvement, into the Woods and Fields, and left no Place unvisited where any Increase of Botanical Knowledge could be reasonably hoped for.

In Conjunction with all these Inquiries, he still pursued his Theological Studies, and still, as we are inform'd by himself, *proposed, when he had made himself Master of the whole Art of Physic, and obtain'd the Honour of a Degree in that Science, to petition regularly for a License to preach, and to engage in the Cure of Souls*; and intended, in his Theological Exercises, to discuss this Question, *Why so many were formerly converted to Christianity by illiterate Persons, and so few at present by Men of Learning.*

In pursuance of this Plan he went to *Hardewich*, in order to take the Degree of Doctor in Physic, which he obtain'd in July 1693. having perform'd a public Disputation, *De utilitate explorandorum excrementorum in aegris, ut signorum.*

Then returning to *Leyden*, full of his pious Design of undertaking the Ministry, he found, to his Surprise, unexpected Obstacles thrown in his Way, and an Insinuation dispers'd thro' the University, that made him suspected, not of any slight Deviation from received Opinions, not of any pertinacious Adherence to his own Notions in doubtful and disputable Matters, but of no less than *Spinozism*, or, in plainer Terms, of Atheism itself.

How so injurious a Report came to be rais'd, circulated, and credited, will be, doubtless, very eagerly inquir'd; and an exact Relation of the Affair will not only satisfy the Curiosity of Mankind, but shew that no Merit, however exalted, is exempt from being not only attack'd, but wounded, by the most contemptible Whispers. Those who cannot strike with Force, can, however, poison their Weapon, and, weak as they are, give mortal Wounds, and bring a Hero to the Grave: So true is that Observation, that many are able to do Hurt, but few to do Good.

This detestable Calumny owed its Rise to an Incident, from which no Consequence of Importance could be reasonably apprehended. As *Boerhaave* was sitting in a common Boat, there arose a Conversation among the Passengers upon the impious and pernicious Doctrine of *Spinoza*, which, as they all agreed, tends to the utter Overthrow of all Religion. *Boerhaave* sat, and attended silently to this Discourse for some time, till one of the Company, willing to distinguish himself by his Zeal, instead of confuting the Positions of *Spinoza* by Argument, began to give a Loosé to contumelious Language, and virulent Invectives; with which *Boerhaave* was so little pleas'd, that at last

last he could not forbear asking him, whether he had ever read the Author against whom he declaim'd.

The Orator, not being able to make much Answer, was check'd in the Midst of his Invectives, but not without feeling a secret Resentment against him who had at once interrupted his Harangue, and exposed his Ignorance.

This was observed by a Stranger, who was in the Boat with them; he inquir'd of his Neighbour the Name of the young Man, whose Question had put an End to the Discourse; and, having learn'd it, set it down in his Pocket-book, as it soon appear'd, with a malicious Design; for, in a few Days, it was the common Conversation at *Leyden*, that *Boerhaave* had revolted to *Spinoza*.

It was in vain, that his Advocates and Friends pleaded his learned and unanswerable Confutation of all atheistical Opinions, and particularly of the System of *Spinoza*, in his Discourse of the Distinction between Soul and Body. Such Calumnies are not easily suppressed, when they are once become general. They are kept alive and supported by the Malice of bad, and sometimes by the Zeal of good Men, who, tho' they do not absolutely believe them, think it yet the surest Method, to keep not only guilty, but suspected Men out of public Employments, upon this Principle, That the Safety of many is to be prefer'd before the Advantage of a few.

Boerhaave, finding this formidable Opposition raised against his Pretensions to Ecclesiastical Honours or Preferments, and even against his Design of assuming the Character of a Divine, thought it neither necessary nor prudent to struggle with the Torrent of popular Prejudice, as he was equally qualified for a Profession, not indeed of equal Dignity or Importance, but which must undoubtedly claim the second Place among those which are of the greatest Benefit to Mankind.

He therefore applied himself to his medicinal Studies with fresh Ardor and Alacrity, reviewed all his former Observations and Inquiries, and was continually employed in making new Acquisitions.

Having now qualified himself for the Practice of Physic, he began to visit Patients, but without that Encouragement which others, not equally deserving, have sometimes met with. His Business was, at first, not great, and his Circumstances by no means easy; but still, superior to any Discouragement, he continued his Search after Knowledge, and determin'd that Prosperity, if ever he was to enjoy it, should be the Consequence, not of mean Art, or disingenuous Solicitations, but of real Merit, and solid Learning.

His steady Adherence to his Resolutions appears yet more plainly from this Circumstance: He was, while he yet remain'd in this unpleasant Situation, invited by one of the first Favourites of King *William III.* to settle at the *Hague* upon very advantageous Conditions, but declined the Offer. For having no Ambition but after Knowledge, he was desirous of living at Liberty, without any Restraint upon his Looks, his Thoughts, or his Tongue, and at the utmost Distance from all Contentions and State-parties. His Time was wholly taken up in visiting the Sick, studying, making chymical Experiments, searching into every Part of Medicine with the utmost Diligence, teaching the Mathematics, and reading the Scriptures, and those Authors who profess to teach a certain Method of loving God.

This was his Method of living to the Year 1701, when he was recommended by Mr. *Van Berg* to the University, as a proper Person to succeed *Drelincourt* in the Office of Lecturer on the Institutes of Physic, and elected without any Solicitation on his part, and almost without his Consent, on the 18th of May.

On this Occasion, having observ'd, with Grief, that *Hippocrates*, whom he regarded not only as the Father, but as the Prince of Physicians, was not sufficiently read or esteem'd by young Students, he pronounced an Oration, *de commendando Studio Hippocratico*; by which he restored that great Author to his just and antient Reputation.

He now began to read public Lectures with great Applause, and was prevail'd upon by his Audience to enlarge his original Design, and instruct them in Chymistry.

This he undertook, not only to the great Advantage of his Pupils, but to the great Improvement of the Art itself, which had been hitherto treated only in a confus'd and irregular manner, and was little more than a History of particular Experiments, not reduced to certain Principles, nor connected one with another: This vast Chaos he reduced to Order, and made that clear and easy, which was before to the last degree perplex'd and obscure.

His Reputation began now to bear some Proportion to his Merit, and extended itself to distant Universities; so that in 1703, the Professorship of Physic being vacant at *Groningen*, he was invited thither; but he chose to continue his present Course of Life, and therefore refus'd to quit *Leyden*.

This Invitation and Refusal being related to the Governors of the University of *Leyden*, they had so grateful a Sense of his Regard for them, that they immediately voted an honorary In-

crease of his Salary, and promised him the first Professorship that should be vacant.

On this Occasion he pronounc'd an Oration upon *the Use of Mechanics in the Science of Physic*, in which he endeavour'd to recommend a rational and mathematical Inquiry into the Causes of Diseases, and the Structure of Bodies; and to shew the Folly and Weakness of the Jargon introduc'd by *Paracelsus*, *Helmont*, and other chymical Enthusiasts, who have obtruded idle Dreams upon the World, and, instead of enlightening their Readers with Explications of Nature, have darkened the plainest Appearances, and bewilder'd Mankind in Error and Obscurity.

Boerhaave had now for nine Years read physical Lectures, but without the Title or Dignity of a Professor, when, by the Death of Professor *Hotten*, the Professorship of Physic and Botany fell to him of course.

On this Occasion he asserted the Simplicity and Facility of the Science of Physic, in Opposition to those who think, that Obscurity contributes to the Dignity of Learning, and that, to be admired, it is necessary not to be understood.

His Profession of Botany made it Part of his Duty to superintend the physical Garden, which he improv'd so much by the immense Number of new Plants which he procur'd, that it was enlarg'd to twice its original Extent.

In 1714, he was deservedly advanc'd to the highest Dignities of the University, and in the same Year made Physician of St. *Augustine's* Hospital in *Leyden*, into which the Students are admitted twice a Week to learn the Practice of Physic.

This was of equal Advantage to the Sick and the Students; for the Success of his Practice was the best Demonstration of the Soundness of his Principles.

When he laid down his Office of Governor of the University in 1715, he made an Oration upon the Subject of *attaining to Certainty in Natural Philosophy*; in which he declares himself, in the strongest Terms, a Favourer of experimental Knowledge, and reflects with just Severity upon those arrogant Philosophers, who are too easily disgusted with the slow Methods of obtaining true Notions by frequent Experiments, and who, possess'd with too high an Opinion of their own Abilities, rather chuse to consult their own Imaginations, than inquire into Nature; and are better pleas'd with the delightful Amusement of forming Hypotheses, than the toilsome Drudgery of amassing Observations.

The Emptiness and Uncertainty of all those Systems, whether venerable for their Antiquity, or agreeable for their Novelty, he has evidently shewn; and not only declar'd, but prov'd, that we are entirely ignorant of the Principles of Things, and that all the Knowledge we have is of such Qualities alone as are discoverable by Experience, or such as may be deduced from them by Mathematical Demonstration.

This Discourse, fill'd as it was with Piety, and a true Sense of the Greatness of the Supreme Being, and the Incomprehensibility of his Works, gave such Offence to a Professor of *Franker*, who, having long entertain'd a high Esteem for *Descartes*, consider'd his Principles as the Bulwark of Orthodoxy, that he appear'd in Vindication of his darling Author, and complain'd of the Injury done him with the greatest Vehemence, declaring little less than that the *Cartesian* System and the Christian must inevitably stand and fall together, and that to say we were ignorant of the Principles of Things, was not only to enlist among the Sceptics, but to sink into Atheism itself.

So far can Prejudice darken the Understanding, as to make it consider precarious and uncertain Systems as the chief Support of sacred and unvariable Truth.

This Treatment of *Boerhaave* was so far resent'd by the Governors of his University, that they procur'd from *Franker* a Recantation of the Invective, that had been thrown out against him. This was not only comply'd with, but Offers were made him of more ample Satisfaction; to which he return'd an Answer not less to his Honour than the Victory which he gain'd; "That he should think himself sufficiently compensated, if his warned Adversary received no farther Molestation on his Account."

So far was this weak and injudicious Attack from shaking a Reputation not casually raised by Fashion or Caprice, but founded upon solid Merit, that the same Year his Correspondence was desired upon Botany and Natural Philosophy by the Academy of Sciences at *Paris*, of which he was, upon the Death of Count *Marfigli*, in the Year 1728, elected a Member.

Nor were the *French* the only Nation by which this great Man was courted and distinguished; for, two Years after, he was elected Fellow of our Royal Society.

It cannot be doubted, but, thus carels'd, and honoured with the highest and most public Marks of Esteem by other Nations, he became more celebrated in his own University; for *Boerhaave* was not one of those learned Men, of whom the World has seen too many, that disgrace their Studies by their Vices, and by unaccountable Weaknesses make themselves ridiculous

at Home, while their Writings procure them the Veneration of distant Countries, where their Learning is known, but not their Follies.

Not that his Countrymen can be charged with being insensible of his Excellencies, till other Nations taught them to admire him; for in 1718. he was chosen to succeed *Le Mort* in the Professorship of *Chymistry*, on which Occasion he pronounced an Oration, *De Chymia errores suos expurgante*; in which he treated that Science with an Elegance of Style not often to be found in chymical Writers, who seem generally to have affected not only a barbarous, but unintelligible Phrase, and, like the *Pythagoreans* of old, to have wrapt up their Secrets in Symbols; and enigmatical Expressions, either because they believed, that Mankind would reverence most what they least understood, or because they wrote not from Benevolence, but Vanity, and were desirous to be praised for their Knowledge, though they could not prevail upon themselves to communicate it.

In 1722. his Course both of Lectures and Practice was interrupted by the Gout, which, as he relates it in his Speech after his Recovery, he brought upon himself, by an imprudent Confidence in the Strength of his own Constitution, and by transgressing those Rules which he had a thousand times inculcated to his Pupils and Acquaintance. Rising in the Morning before Day, he went immediately, hot and sweating, from his Bed into the open Air, and exposed himself to the cold Dews.

The History of his Illness can hardly be read without Horror. He was for five Months confined to his Bed, where he lay upon his Back without daring to attempt the least Motion, because any Effort renewed his Torments, which were so exquisite, that he was at length not only deprived of Motion, but of Sense. Here Art was at a stand; nothing could be attempted, because nothing could be proposed with the least Prospect of Success. At length having, in the sixth Month of his Illness, obtained some Remission, he took simple Medicines in large Quantities, and at length wonderfully recovered.

Succos pressos bibit Notter herbarum Cichoreæ, Endiviæ, Fumariæ, Nasturtii aquatici, Veronicæ aquaticæ latifoliæ, copia ingenti: Simul deglutiens abundantissime gummi ferulaceæ Asiaticæ.

His Recovery, so much desired, and so unexpected, was celebrated on January 11. 1723. when he open'd his School again with general Joy, and public Illuminations.

It would be an Injury to the Memory of *Boerhaave*, not to mention what was related by himself to one of his Friends, that when he lay whole Days and Nights without Sleep, he found no Method of diverting his Thoughts so effectual as Meditation upon his Studies, and that he often relieved and mitigated the Sense of his Torments by the Recollection of what he had read, and by reviewing those Stores of Knowledge which he had reposit in his Memory.

This is, perhaps, an Instance of Fortitude, and steady Composition of Mind, which would have been for ever the Boast of the Stoic Schools, and increased the Reputation of *Seneca* or *Cato*. The Patience of *Boerhaave*, as it was more rational, was more lasting than theirs; it was that *Patientia Christiana*, which *Lippius*, the great Master of the Stoical Philosophy, begged of God in his last Hours; it was founded on Religion, not Vanity; not on vain Reasonings, but on Confidence in God.

In 1727. he was seized with a violent burning Fever, which continued so long, that he was once more given up by his Friends.

From this time he was frequently afflicted with Returns of his Distemper, which yet did not so far subdue him, as to make him lay aside his Studies, or his Lectures, till in 1726. he found himself so worn out, that it was improper for him to continue any longer the Professorships of Botany and Chymistry, which he therefore resigned April 28. and upon his Resignation spoke a *Sermo Academicus*, or Oration, in which he asserts the Power and Wisdom of the Creator, from the wonderful Fabric of the human Body; and confutes all those idle Reasoners who pretend to explain the Formation of Parts, or the animal Operations, to which he proves that Art can produce nothing equal, nor any thing parallel. One Instance I shall mention, which is produced by him, of the Vanity of any Attempt to rival the Works of God. Nothing is more boasted by the Admirers of Chymistry, than that they can, by artificial Heats and Digestion, imitate the Productions of Nature. *Let all these Heroes of Science meet together, says Boerhaave, let them take Bread and Wine, the Food that forms the Blood of Man, and by Assimilation contribute to the Growth of the Body: Let them try all their Arts, they shall not be able from these Materials to produce a single Drop of Blood.* So much is the most common Act of Nature beyond the utmost Efforts of the most extended Science!

From this time *Boerhaave* lived with less public Employment indeed, but not an idle or an useless Life; for, besides his Hours spent in instructing his Scholars, a great Part of his Time was taken up by Patients, who came, when the Distemper would admit it, from all Parts of *Europe* to consult him, or

did it by Letters, which, in more urgent Cases, were continually sent to inquire his Opinion, and ask his Advice.

Of his Sagacity, and the wonderful Penetration with which he often discovered and described, at the first Sight of a Patient, such Distempers as betray themselves by no Symptoms to common Eyes, such wonderful Relations have been spread over the World, as, though attested beyond Doubt, can scarcely be credited. I mention none of them, because I have no Opportunity of collecting Testimonies, or distinguishing between those Accounts which are well proved, and those which owe their Rise to Fiction and Credulity.

Yet I cannot but implore, with the greatest Earnestness, such as have been conversant with this great Man, that they will not so far neglect the common Interest of Mankind, as to suffer any of these Circumstances to be lost to Posterity. Men are generally idle; and ready to satisfy themselves, and intimidate the Industry of others, by calling that impossible which is only difficult. The Skill to which *Boerhaave* attained, by a long and unwearied Observation of Nature, ought therefore to be transmitted in all its Particulars to future Ages, that his Successors may be ashamed to fall below him, and that none may hereafter excuse his Ignorance, by pleading the Impossibility of clearer Knowledge.

Yet so far was this great Master from presumptuous Confidence in his Abilities, that in his Examinations of the Sick he was remarkably circumstantial and particular. He well knew, that the Originals of Distempers are often at a Distance from their visible Effects; that to acquiesce in Conjecture, where Certainty may be obtained, is either Vanity or Negligence; and that Life is not to be sacrificed, either to an Affectation of quick Discernment, or of crowded Practice; but may be required, if trifled away, at the Hand of the Physician.

About the Middle of the Year 1737. he felt the first Approaches of that fatal Illness that brought him to the Grave, of which we have inserted an Account written by himself Sept. 8. 1738. to a Friend at London; which deserves not only to be preserved as an historical Relation of the Disease which deprived us of so great a Man, but as a Proof of his Piety and Resignation to the Divine Will.

Ætas, labor, corporisque opima pinguetudo, effecerant, ante annum, ut inertibus refertum, grave, hebes, plenitudine turgens corpus, anhelum ad motus minimos, cum sensu suffocationis, pulsu mirifice anomalo, ineptum evaderet ad ullum motum. Urgebat præcipue subsistens prorsus & intercepta respiratio ad prima somni initia: Unde somnus prorsus prohibebatur, cum formidabili strangulationis molestia. Hinc hydrops pedum, crurum, femorum, scroti, præputii, & abdominis. Quæ tamen omnia sublata. Sed dolor manet in abdomine, cum anxietate summa, anhelitu suffocante, & debilitate incredibili: Somno paucis, coque vago, per somnia turbatissimo: Animus vero rebus agendis impar. Cum his luctor fessus, nec emergo: Patienter expectans Dei jussa, quibus resigno data, quæ sola amo, & honore unice.

In this last Illness, which was to the last Degree lingering, painful, and afflictive, his Constancy and Firmness did not forsake him. He neither intermitted the necessary Cares of Life, nor forgot the proper Preparations for Death. Though Dejection and Lowness of Spirit was, as he himself tells us, Part of his Distemper; yet even this, in some measure, gave way to that Vigour which the Soul receives from a Consciousness of Innocence.

About three Weeks before his Death he received a Visit at his Country-house from the Rev. Mr. *Schultens*, his intimate Friend, who found him sitting without Door, with his Wife, Sister, and Daughter. After the Compliments of Form, the Ladies withdrew, and left them to private Conversation; when *Boerhaave* took Occasion to tell him what had been, during his Illness, the chief Subject of his Thoughts. He had never doubted of the spiritual and immaterial Nature of the Soul, but declared that he had lately had a kind of experimental Certainty of the Distinction between corporeal and thinking Substances, which mere Reason and Philosophy cannot afford; and Opportunities of contemplating the wonderful and inexplicable Union of Soul and Body, which nothing but long Sickness can give. This he illustrated by a Description of the Effects which the Infirmities of his Body had upon his Faculties; which yet they did not so oppress or vanquish, but his Soul was always Master of itself, and always resigned to the Pleasure of its Maker.

He related, with great Concern, that once his Patience so far gave way to Extremity of Pain, that, after having lain sixteen Hours in exquisite Tortures, he prayed to God, that he might be set free by Death.

Mr. *Schultens*, by way of Consolation, answered, That he thought such Wishes, when forced by continued and excessive Torments, unavoidable in the present State of human Nature; that the best Men, even *Job* himself, were not able to refrain from such Starts of Impatience. This he did not deny, but said, "He that loves God, ought to think nothing desirable but what is most pleasing to the supreme Goodness."

Such were his Sentiments, and such his Conduct, in this State of Weakness and Pain: As Death approached nearer, he was so far from Terror or Confusion, that he seemed even less sensible of Pain, and more chearful under his Torments, which continued till the 23d Day of September 1738. on which he died, between Four and Five in the Morning, in the 70th Year of his Age.

Thus died *Boerhaave*, a Man formed by Nature for great Designs, and guided by Religion in the Exertion of his Abilities. He was of a robust and athletic Constitution of Body, so hardened by early Severities, and wholesome Fatigue, that he was insensible of any Sharpness of Air, or Inclemency of Weather. He was tall, and remarkable for extraordinary Strength. There was in his Air and Motion something rough and artless, but so majestic and great at the same time, that no Man ever looked upon him without Veneration, and a kind of tacit Submission to the Superiority of his Genius.

The Vigour and Activity of his Mind sparkled visibly in his Eyes, nor was it observed, that any Change of his Fortune, or Alteration in his Affairs, whether happy or unfortunate, affected his Countenance.

He was always chearful, and desirous of promoting Mirth by a facetious and humorous Conversation; he was never soured by Calumny and Detraction, nor ever thought it necessary to confute them; for *they are Sparks*, said he, *which, if you do not blow them, will go out of themselves*.

Yet he took care never to provoke Enemies by Severity of Censure; for he never dwelt on the Faults or Defects of others, and was so far from insinuating the Envy of his Rivals by dwelling on his own Excellencies, that he rarely mentioned himself, or his Writings.

He was not to be overaw'd or depress'd by the Presence, Frowns, or Insolence of great Men, but persisted on all Occasions in the right, with a Resolution always present, and always calm. He was modest, but not timorous; and firm without Rudeness.

He could, with uncommon Readiness and Certainty, make a Conjecture of Mens Inclinations and Capacity by their Aspect.

His Method of Life was to study in the Morning and Evening, and to allot the Middle of the Day to his public Business. He rose at Four in the Summer, and Five in Winter. His usual Exercise was Riding, till, in his latter Years, his Distempers made it more proper for him to walk; when he was weary, he amused himself with playing on the Violin.

His greatest Pleasure was to retire to his House in the Country, where he had a Garden of eight Acres, sowed with all the Herbs and Trees which the Climate would bear: Here he used to enjoy his Hours unmolested, and prosecute his Studies without Interruption.

The Diligence with which he pursued his Studies, is sufficiently evident from his Success. Statesmen and Generals may grow great by unexpected Accidents, and a fortunate Concurrence of Circumstances, neither procured nor foreseen by themselves: But Reputation in the learned World must be the Effect of Industry and Capacity. *Boerhaave* lost none of his Hours, but when he had attained one Science, attempted another: He added Physic to Divinity, Chymistry to the Mathematics, and Botany to Anatomy. He examined Systems by Experiments, and formed Experiments into Systems. He neither neglected the Observations of others, nor blindly submitted to celebrated Names. He neither thought so highly of himself, as to imagine he could receive no Light from Books; nor so meanly, as to believe he could discover nothing but what was to be learned from them. He examined the Observations of other Men, but trusted only to his own.

Nor was he unacquainted with the Art of recommending Truth by Elegance, and embellishing Philosophy with polite Literature; he knew that but a small Part of Mankind will sacrifice their Pleasure to their Improvement; and those Authors who would find many Readers, must endeavour to please while they instruct.

He knew the Importance of his own Writings to Mankind; and lest he might by a Roughness and Barbarity of Style, too frequent among Men of great Learning, disappoint his own Intentions, and make his Labours less useful, he did not neglect the Arts of Eloquence and Poetry. Thus was his Learning at once various and exact, profound and agreeable.

He was not only skilled in the learned Languages, and the Tongues in which the Old Testament was written, but was able to converse in many of the modern Languages, and to read others which he could not speak.

But his Knowledge, however uncommon, holds, in his Character, but the second Place; his Virtue was yet much more uncommon than his Learning. He was an admirable Example of Temperance, Fortitude, Humility, and Devotion. His Piety, and a religious Sense of his Dependence on God, was the Basis of all his Virtues, and the Principle of his whole Conduct. He was too sensible of his Weakness to ascribe any thing to himself, or to conceive that he could subdue Passion, or withstand Temptation, by his own natural Power; he attributed every good

Thought, and every laudable Action, to the Father of Goodness. Being once asked by a Friend, who had often admired his Patience under great Provocations, whether he knew what it was to be angry, and by what means he had so entirely suppressed that impetuous and ungovernable Passion; he answer'd; with the utmost Frankness and Sincerity, That he was naturally quick of Resentment, but that he had, by daily Prayer and Meditation, at length attained to this Mastery over himself.

As soon as he rose in the Morning, it was, throughout his whole Life, his daily Practice to retire for an Hour to private Prayer and Meditation; this, he often told his Friends, gave him Spirit and Vigour in the Business of the Day; and this he therefore commended as the best Rule of Life; for nothing, he knew, could support the Soul in all Distresses but a Confidence in the Supreme Being, nor can a steady and rational Magnanimity flow from any other Source than a Consciousness of the Divine Favour.

He asserted on all Occasions the Divine Authority, and sacred Efficacy, of the Holy Scriptures; and maintained that by them alone was taught the Way of Salvation, and that they only could give Peace of Mind. The Excellency of the Christian Religion was the frequent Subject of his Conversation. A strict Obedience to the Doctrine, and a diligent Imitation of the Example, of our blessed Saviour, he often declared to be the Foundation of true Tranquillity. He recommended to his Friends a careful Observation of the Precept of *Moses* concerning the Love of God and Man. He worshipped God as he is in himself, without attempting to inquire into his Nature. He desired only to think of God, what God has reveal'd of himself. There he stopped, lest by indulging his own Ideas he should form a Deity from his own Imagination; and commit Sin by falling down before him. To the Will of God he paid an absolute Submission, without endeavouring to discover the Reason of his Determinations; and this he accounted the first and most inviolable Duty of a Christian. When he heard of a Criminal condemned to die, he used to think, and often to say, Who can tell whether this Man is not better than I? Or, if I am better, it is not to be ascribed to myself, but to the Goodness of God.

So far was this Man from being made impious by Philosophy, or vain by Knowledge, or by Virtue, that he ascribed all his Abilities to the Bounty, and all his Goodness to the Grace of God. May his Example extend its Influence to his Admirers and Followers! May those who study his Writings, imitate his Life; and those who endeavour after his Knowledge, aspire likewise to his Piety!

He married, September 17. 1710. *Mary Drelincour*, the only Daughter of a Burgomaster of *Leyden*, by whom he had *Joanna Maria*, who survives her Father, and three other Children, who died in their Infancy.

The genuine Works of *Boerhaave*, according to his own Catalogue of them, are as follows; and he declares, in 1732. that all others under his Name are spurious, unless some few Prefaces to new Editions of Books.

Oratio de commendanda Studio Hippocratico, habita & impressa Lugd. Bat. 1701. apud Alrab. Elj vier.

----- *de Usu Ratiocinii Mechanici in Medicina*, 1703. apud *Joann. Verbeest.*

----- *qua repurgatae Medicinae facili affertur Simplicitas*, 1709. apud *Joann. Vander Linden.*

----- *de comparando Certo in Physicis*, 1715. apud *Petrum Vander Aa.*

----- *de Chymia suis erroribus expurgante*, 1718. apud *Petrum Vander Aa.*

----- *de Vita & Obitu Clarissimi Bernardi Albini*, 1721. apud *Petrum Vander Aa.*

----- *quam habui, quom. honesta missione impetrata, Botanica & Chymica professionem publicam percuram*, 1729. apud *Joannem Severinum.*

----- *de Honore Medici, Servitute*, 1731. apud *Joannem Severinum.*

Institutiones Medicae in Usus annuae exercitationis d. r. s. s. s., 1728. apud *Joannem Vander Linden*, P. & F.

Qui de in auctor aliquoties recens in 8vo.

Aphorismi de cognoscendis & curandis Morbis, in usum doctrinae domesticae, 1709. apud *Joannem Vander Linden.*

Qui de in auctor aliquoties recens in 8vo.

Index plantarum, quae in Horto Academico Lugduno-Batavo reperiuntur, 1717. apud *Cornelium Bonteston*, in 8vo.

Libellus de Materie Medicae, & Remedium Formulis, 1719. apud *Joannem Severinum*, in 8vo.

Qui iterum prodit in 8vo.

Index alter plantarum, quae in Horto Academico Lugduno-Batavo aluntur, 1720. apud *Petrum Vander Aa*, in 4to.

Artes, nec descripti prius, Morbi Historia, secundum Medicam artis leges conscripta, 1724. apud *Bonteston*, in 8vo.

Artes, rursusque, Morbi Historia altera, 1728. apud *Samuelem Luchmans & Theodorum Haak*, in 8vo.

Traclatus Medicus de Lue Aphrodisiaca, praeus Aphrodisiacis, 1728. apud *Joh. Arn. Langerak, & Joh. & Thom. Loebk*, in Folio.

Besides these, he communicated to the Royal Society, and to the Royal Academy of Sciences, some Observations upon Quicksilver, which are published in the *Philosophical Transactions*.

Having given this Account of the Life and Writings of *Boerhaave*, it remains, that I take some Notice of his capital Works, which are his Institutes, his Aphorisms, and his Chymistry.

His Institutes were designed as little more than a Syllabus to his Lectures. They are written in a very concise and close Style, but abound in Matter containing all the modern Discoveries in Anatomy, Physiology, and whatever relates to the Laws of the Animal Oeconomy, and the Action of Medicines upon the Body, with considerable Improvements of his own, which are specify'd under their proper Articles. This Treatise is very methodical and distinct; but I apprehend it is utterly unintelligible to any one who is not in some Degree previously acquainted with the Subjects of which he treats.

His Aphorisms are, as he tells us himself, collected from the Greek Medicinal Writers, the *Arabians*, and some few of the Moderns; and his Reasonings are founded on the Structure of the Parts, and the Laws of Mechanics. I must here observe, that *Boerhaave*, to his great Honour, seems to have gone counter to most Writers of Institutes, and Compilers of Systems. For they have generally endeavour'd to lead Nature as it were captive, and make her act conformable to their preconceived Notions, however crude and chimerical; imposing Laws upon the Animal Oeconomy, which have no Reality, and establishing with great Pains and Industry, Sources of Action, which exist no-where but in their own Imaginations. *Boerhaave*, on the contrary, was convinced by daily Experience, and a Fund of good Sense, that the Greek Physicians by diligent Observation had determin'd with great Accuracy, how Nature acts in producing the Symptoms of Distempers, and her Methods of relieving her herself, either with or without the Assistance of Art; and that their Experience had furnish'd them with very successful Methods of Cure. The two Points therefore which he seems to have had perpetually in View were, to establish on Mechanical Principles, as much as was possible, the Doctrine of the Antients with respect to the Diagnostics and Prognostics of Diseases, and shew that they could not be otherwise than they have represented them.

But the second View is of more Importance than the first, it being no less than to demonstrate, that the Methods of Cure, pursued by the antient Physicians, were generally the best that could possibly have been contriv'd with the Materials they were acquainted with, tho' for Reasons to which they were probably Strangers. This appears to me the distinguishing Character of *Boerhaave*. And by this he has done almost as much Service to Physic, as his Predecessors for some Centuries had done Mischief.

It is greatly to be lamented, that our illustrious Author did not think proper to publish his Lectures on his Institutes and Aphorisms, before his Decease. If he had foreseen the fatal Consequences of such an Omission, I believe his Love to Mankind would have prevailed upon him to have done it, and thereby prevented the Mischief his great Name, and the Reputation of his Lectures, may possibly do in the World. That I may explain my Meaning, I must observe, that it is the Misfortune of the *English* to be very little used to converse in *Latin*, tho' perhaps no People in the World understand it better. Add to this, that as we pronounce *Latin* in a different manner from all other Nations, our Ears are not accustom'd to the foreign Accent. Hence Foreigners with Difficulty understand us, and, on the other hand, it is impossible for us to take their Meaning, especially in long Discourses, with that Degree of Exactness, which Subjects of Importance require; and indeed it is no easy Matter to take the entire Sense of long Discourses, tho' deliver'd in the Languages we are best acquainted with. This is the Reason, that many of his Pupils, who have only attended his Lectures for two or three Years, have frequently mistaken his Meaning, and held their own Errors in an equal Degree of Veneration with the genuine Doctrine of their Professor; and have imprudently neglected to set themselves right, by examining the Sources from whence *Boerhaave* himself drew his Treasures; sometimes perhaps, because they imagined the Authority of their Professor render'd it superfluous; and sometimes, because they were Strangers to the Languages in which the best Medicinal Authors wrote; thus either out of Choice or Necessity taking a more easy, tho' less certain Way to Knowledge, than *Boerhaave* either advis'd, or thought proper to pursue himself.

That this has been really the Case, the spurious Works, attributed to *Boerhaave* by his Scholars, are glaring Evidences; amongst which, his Method of studying Physic, as I think it is called, deserves some Notice, being a crude and injudicious Performance, and in a great many Instances contradictory to the Sentiments of *Boerhaave*, on the Subjects there treated; and, as I remember, it recommends some Authors who never wrote, or even existed. In the same Rank is the *Praxis*

Medica, printed in five Volumes in *Holland*, tho' the Title tells us at *Padua*. In the Preface we are informed, that many of his Auditors took his Lectures in Writing; that these were carefully compar'd, and hence this Work was compiled. Yet, notwithstanding all this Care, there are not many Pages without some enormous Error, nor even Sentences without false *Latin*; so little did they understand either their Professor, or their Subjects.

With respect to his Chymistry, it may be justly said, that his Theory is more philosophical, exact, and full, and his Processes more methodical and regular, than those of any preceding Author on the Subject. It is remarkable, that in this Work he has made many Chymical Operations subservient to the establishing several important Doctrines of the Antients, and to the Confirmation of their Practice. I shall conclude with remarking, that this Work alone would have been sufficient to raise the Character of any other Man; but is, however, that in which *Boerhaave* shines much less than in his Institutes and Aphorisms, the last of which is, perhaps, more useful than any one Book written upon Physic, and has had the Honour of being translated into *Arabic*, as is said, by the *Musti*, and printed at *Constantinople*.

BOETHEMA, βοήθημα. A Remedy.

BOETHEMATICA SEMEIA βοθηματικά σημεῖα, auxiliary Signs in Diseases, are such as give us Notice of a Cure observable in them, (ἐξ ὧν ὑπομνημονοῦμεθα τὴν ἐπ' αὐτοῖς τρέφουμένην δεξιότητα) *Gal. Def. Med.*

BOF. Quick-lime. *Rulandus*.

BOICININGA, Johnston. *Boicinininga*, G. Pison. *Dominica Serpentina*, Nieremb. In *Portuguese* and *Spanish*, *Cascavel*, or *Tagendor*; in *French*, *Serpent à Sonnettes*; in *English*, the RATTLE-SNAKE.

A Serpent of *Brasil*, four or five Feet long, of the Thickness of a Man's Arm, and of a reddish Colour, inclining to yellow, with small Eyes, a forked Tail, very long and sharp Teeth, and its Tail towards the Extremity furnished with a parallelogrammous Substance, two Fingers Breadth or more in Length, and about half a Finger's Breadth in Width, consisting, as it were, of small Links combin'd with one another, dry, smooth, shining, and of an Ash-colour inclining to Red. This Substance increases every Year a Link, and makes a Noise like little Rattles, when the Serpent creeps, so as to be heard at a good Distance. It keeps itself in By-paths, and runs after Passengers with such Swiftneſs, that it seems to fly, and is a very violent and dangerous Creature. They say that Travellers, for their Security against it, carry with them a Piece of *Virginian Root* called *Snakeroot*, fasten'd to the End of a Stick; and that when they perceive by the rattling Noise, that the Serpent approaches, they hold forth to it that Root, the Smell of which either kills it, or disables it from advancing any farther.

Its Flesh has the same Virtues as the Viper's in resisting Poison, purifying the Blood, and exciting Sweat. *Lemery des Drogues*.

This seems to be the Rattle-snake now so well known, and so remarkable for its Poison. With respect to this sort of Viper, I find the following Observations in the *Philosophical Transactions*.

The Fat of the *Rattle-snake* is said to be used by the Physicians of *Mexico* with good Success in the Sciatica, and all Pains of the Limbs, and for dissolving preternatural Tumors.

A present Antidote for this Poison is said to be the Snake-stone, *Pierre de Cobras de Cabo*, as it is called by the *Portuguese*, and is famous all over the *Indies*; 'tis describ'd by *Garcias ab Horto*, by *Kircher*, and others, particularly by *Redi*, who renders very much suspected the Relations that are commonly had of its great Force and Virtue: but that it does not always fail, some Accounts I have had of Persons relieved by it here in *England* have convinc'd me. One Instance is remarkable, that was told me by an eminent Physician in *London*, of a Person near the Town that was bit by a Viper: His Hand and Arm soon swelled with great Extremity of Pain; but, upon the Application of this Stone for one Night, both were allwaged, and he thought himself well, and took off the Stone, which still firmly adhered. But, not long after, his former Symptoms violently returning, he had recourse to his Antidote, and then suffered it to continue there till it fell off itself, and so was cured. One Trial I formerly made myself in a Patient, troubled with the Gout in her Stomach; having removed it thence, it seized her Toe; but she being impatient of the Pain, that I might seem to do something, and to hinder her using abundance of Medicines, which every body was like to advise her to, and might be apt to strike it to her Stomach again, I thought of this: Holding the Stone therefore in my Hand, and without acquainting her, I put it near the Joint where her Pain was most, and, being very near it, I perceived it move out of my Hand, and readily adhere to the Part. Soon after, she acquainted me, that she very sensibly perceived a great Drawing and Tickling all down her Leg and Thigh, and afterwards owned an Abatement of her Pain. In peflential

pestilential Swellings very probably it may be of Use. Dr. Edward Tyson.

The *Rattle-snake* seems to take its Name from the Rattles in its Tail, in which are sometimes twenty of those loose Rings. The more Northerly they travel, these Snakes are less numerous, as well as less venomous; nor, as it is said, are any seen to the North of *Merimack* River, which is about forty Miles North of *Boston*. It is constantly affirmed by the *Indians*, that these Snakes frequently lie coiled at the Bottom of a great Tree, with their Eyes fixed on some Squirrel above in the Tree, which seeming by his Cries, and Leaping about, to be in a Fright, yet at last runs down the Tree, and into the Jaws of the Devourer. The Winter-abode of these Snakes is in the Clefts of inaccessible Rocks, from whence in the Spring they come forth a sunning themselves, at first very feeble, which is their chief Time of destroying them. At this time the Cystis or Gall-bladder in these Snakes is full of an acrid azure-coloured Juice, which they squeeze out into a Glass, but it is so spirituous, that, if the Glass be not immediately stopp'd, it will soon evaporate: This Liquor therefore they mix with a convenient Quantity of powder'd Chalk, or *Indian* Meal, and use it as a proper Medicine against the venomous Bite of this Snake. Some have named it *Trochisci Connecticotiani*, from the *Connecticut* Colony. 'Tis observable, when the Summer Heats come on, the Snakes have no longer this azure Liquor in their Gall-bladders, in which there is only found a black thick Sediment of no known Use, at which time they think the forementioned spirituous Juice is carried to, and lodged in their Gums, and so conveyed or thrown by the Hollow of the Teeth into the Wound when they bite, having received another Digestion, and higher Exaltation, by passing through several Strainers and Glands before it arrives at the Gums.

As an Instance of the Virulence of the Liquor, a Traveller, killing one of these Snakes, suffer'd the enraged dying Viper to bite the End of the Switch, with the Lashes of which he had disabled him; and a Fly by chance disturbing one of his Temples as he rode on-wards, he rubb'd his Temple with the other End of the Switch, which immediately caused his whole Head to swell to a great Excess, the Poison, as he supposes, penetrating the whole Length of the Switch. Another provoking a Rattle-snake to bite the Edge of a broad Ax he had in his Hand, the Colour of the steel'd Part bitten was immediately changed; and at the first Stroke he made with it, in using his Ax, the discolour'd Part broke out, leaving a Gap in his Ax. But to return to the Troches made of the Gall: It is a cordial Sudorific, and so good an Anodyne, that some take three or four Grains of it to compose them to Rest after Travel. 'Tis good in all Fevers, especially the malignant. It is an infallible Remedy for Obstructions incident to Women upon catching Cold in Child-bed. Being taken in a convenient Quantity, twelve Hours before the Fit, it certainly cures a Quartan Ague. The Dose is fourteen Grains, more or less, according to the Circumstances of the Patient, in any Vehicle. Dr. Mather.

The Inhabitants of *America* have several Remedies for the Sting of a Rattle-snake: Among others, that which is much made use of is a Root they call Blood-root, I suppose so named from the Colour of the Root, and the Juice, which is red like Blood. It grows in great Abundance in the Woods: They bruise the Root, and bind it above the Place that is bit, to prevent the Poison's going further, at the same time scarifying the Place affected. Some of the Root is also boil'd, and the Person poison'd drinks the Water. *Paul Dudley, Esq; Phil. Transf. Abr.*

The *Senekka* Rattle-snake Root, taken internally, is said to be a Cure for the Bite of the Snake whose Name it bears. But it is probable, that the common Sallad Oil, that is, Oil of Olives, rubb'd well into the Part by a warm Fire, would cure this Bite, as it does that of a Viper.

BOJOBI, *Pison. Jonst.* A Serpent of *Brasil*, call'd by the *Portuguese* *Cobre verde*, about an Ell (*French*) long, and an Inch thick, and of a shining Leek-green Colour; has a wide Mouth, and a black Tongue. It keeps itself among the Stones in Buildings, and does no Harm, unless provoked; but then raises itself on its Tail, and throws itself on the Hand that is next to it. Its Poison is so venomous, that it will hardly yield to the most powerful Remedies. The Medicine chiefly used by the *Indian* Physicians is the Root of an Herb call'd *Coa-apia*, which is full of Joints, which they bruise well, and cause the Patient to swallow in Water.

The Flesh of this Serpent has much the same Virtues with that of the Viper; and the volatile Salt extracted from it would be more effectual against its Bite, than the *Coa-apia*. *Lemery des Drogues.*

BOITIPO, *Mareg. Jonst.* is a Serpent of *Brasil*, called by the *Portuguese* *Cobus de Cipo*. It is seven or eight Feet long, as thick as a Man's Arm, round, and pointed towards the Tail, like a Shoemaker's Awl: It is cover'd with fine, and, as it were, triangular Scales; and is of an olive Colour and yellowish. It lives upon Frogs, and its Bite is dangerous, like that of many other Serpents.

Its Flesh might be used as effectually as that of the Viper for purifying the Blood; and as an Alexipharmac. *Lemery des Drogues.*

BOLBIDION, *βαλβιδιον*. A small Polypus, a sort of Fish. *Hippocrates, περὶ γυναικ. Lib. 2.* ἢ δ' ἄβιον βάλειαι, καὶ βαλβιδία, καὶ σπιγδία καὶ σμικρῶν. "If she has a mind to Bread, and Bulbuli, and small Polypuses." Again, in the same Book, for an Inflammation of the Uterus, he advises, in Food, *βαλβιδίαι καὶ πολυπόδιοισιν ἐν οἴνῳ καὶ ἐλαίῳ*. "Bulbuli and small Polypuses in Wine and Oil." *Foefius.*

BOLBION, *βάλβιον*. This, as well as the preceding, is a Diminutive of *βαλβς*, and is render'd also *Bulbulus*, a small Bulb. *Hippocrates, Lib. 2. περὶ γυναικ.* advises Bulbuli, with Garlick and Nitre, to be used as a Pessary for a Weakness of the Uterus, not retaining the Semen. He often uses the Bulbulus, or *Bolbion*, in a Pessary for Disorders of that Part, as, in *Lib. περὶ ἐπικουσίῃς*, to cleanse the Uterus; and, *Lib. 2. περὶ γυναικ.* the same bruised, with Myrrh and Honey, as an excellent Pessary for the *Fluxus Uterinus*. Again, *Lib. περὶ γυναικ. φῦσ.* he advises the Bolbion, bruised in White-wine, and wrapp'd in Wool, to cleanse the Uterus, in order for Conception; and in the same Book, he orders *βάλβιον ἐν ὄρῳ πυρᾶν*, "the Bolbion which grows amongst Wheat," to be bruised and macerated in Wine, and, being wrapp'd in Wool, to be applied to a Woman newly brought to Bed. See **BULBUS**.

BOLBITION, *βολβίτιον*. *Galen*, in his *Exegesis*, says *Bolbition* is call'd by some *Bimbylion*, and is a small Polypus, a sort of Fish. *Foefius.*

BOLBITON, *βολβίτιον*. Cow-dung. It is also call'd *Bolition*, *βάλιτιον*, as *Galen* says in his *Exegesis*. *Hippocrates, Lib. περὶ γυναικ. φῦσ.* for a Dropsy of the Uterus, advises *πυρῶν ἐν πᾶσι βολβίτιον*, "to soment it with Cow-dung;" and in all his Treatises concerning Women, he frequently prescribes Suffumigations of Cow-dung for Disorders of the Uterus. And *Dioscorides, Lib. 2. Cap. 98.* writes, that the Dung of a Male Bullock represses the Falling-down of the Uterus. It is also called *Bolbitis*, and *Bolitis*, in the *Attic* Dialect, and by *Hesychius* *Bolynthion*. *Foefius.*

BOLBONAC. See **BULBONAC**.

BOLBOS, *βολβός*. *Erotian*, in *Hippocrates*, says, *βολβός βολάνης ἔρμα*, "Bolbos is the Name of an Herb;" but, for *βολβός*, perhaps we should read *βάλβιον*; tho', in *Lib. 7. Epid.* we meet with *βολβός χυλός*, "the Juice of the Bulbus." See **BULBUS**.

BOLCHON, *βολχόν*. A Name for Bdellium.

BOLESIS. A Name for Coral. *Rulandus.*

BOLESON. A Balsam. *Johnson.*

BOLETO, *Frit.* See **FRIETTA**.

BOLETUS. A Mushroom. See **AMANITÆ**.

In Dr. Martyn's *Tournefort* I find the following Catalogue of *Boleti*.

Boletus major, pileo fusco, poris albidis. Fungus porofus magnus crassus, ex fusco albicans, J. B. 3. 817. Lib. 40. C. 29.

The Head of this is sometimes ten or eleven Inches in Diameter, *Vaill.*

Boletus major, pileo purpurascens. Fungus porofus magnus crassus purpurascens.

This differs from the former only in Colour.

Boletus major, pileo tuberculis asperso, coloris aurantii, poris albidis. Fungus porofus magnus crassus, tuberculis minimis exasperatus, colore pomi aurantii exiccati, Vaill. 59.

The Diameter of the Head is from four to six Inches. The Stalk is four or five Inches high, above an Inch thick at the Base, and tapers towards the Top. It is white, and in a manner hairy: This Hair or Down afterwards grows black, and variegates the Stalk.

Boletus major, pileo castanei coloris, poris ex luteo viridibus. Fungus porofus magnus crassus, coloris castanei nunc liquidioris, nunc magis folidi, Vaill. 59.

The Head is from four to nine Inches in Diameter: Its Substance is white, but it grows red soon after it is cut. It is an Inch thick in its thickest Part. The Top of the Head is a bright chestnut Colour, sometimes of a dirty-white, and sometimes of an amber Colour. The Stalk is white, and sometimes tinged with Yellow. It is five Inches high, and two or three in Diameter towards the Base, especially when the Plant is growing, and tapers towards the Top. It is found about the latter End of *August*, and Beginning of *September*. The *Fungus porofus maximus crassus luteus lacer, pediculo longissimo viridescens*, *Cimel. Reg.* and the *Fungus porofus nostrus brachiatus maximus*, *ibid.* are Varieties of this Species, *Vaill.*

I take this to be the same with the *Fungus porofus magnus*, *Rail Hist. 100.* which we often meet with about the latter End of Summer.

Boletus pileo purpurascens, poris flavis. Fungus porofus medius, folidus purpurascens, Vaill. 59.

The Head is about two Inches in Diameter, a little convex. The Stalk is about one Inch and a half high, five Lines thick, and of the same Colour with the Head. Perhaps it is the *Pim-*

gus Italicus, pediculo tumente, pilcolo supina parte coloris vini sacum, prona vero luteo, Cimecl. Reg. Vaill.

Boletus pileo sordide albo, tuberculis castaneis variegato, poris flavis. Fungus porosus medius, superficiei sordide alba, tuberculis castaneis variegata, Vaill. 59.

The Head is hemispherical at first; afterwards it grows flatter. It is two or three Inches high, of a dirty White, near an Inch thick at the Base, and about six Lines at the Top. I take it to be the *Fungus brizzatus madidus*, Raii Supp. 25. Vaill.

Boletus levis & viscidus, superne coloris fusci castanei, inferne lutei, Dillen. Cat. Giff. 188. Fungi lutei perniciosi sub pinu habitantes, J. B. 3. 816. Lib. 40. C. 24.

The Head of this is from one to three Inches in Diameter: It is a little convex, of the Colour of Ginger-bread, or a reddish Yellow, smooth, and a little shining. This Shining proceeds from a Slime, with which it is usually cover'd, especially whilst it is young. Its Flesh is white. The Pores are of a Lemon or Brimstone-colour; there is a whitish Liquor distils from them, which gathers in Drops. The Stalk is white, an Inch or two long, and a little swell'd something above the Base.

Boletus pileo sordide albo, caule ovali. Fungus porosus, pediculo ovali, pilcoli superficiei sordidissime alba, Vaill. 60.

The Stalk, Pores, and Head, are all the same Colour; the Flesh of the Head, when broken or cut, is bluish, and stains the Paper of the same Colour. Vaill.

Boletus pileo croceo, caule ovali. Fungus porosus, pediculo ovali, pilcoli superficiei splendide crocea, Vaill. 60.

The Head is of a dark Saffron-colour, and the Pores of a light one; as is also the upper Part of the Stalk, tho' the lower Part of it is of the same Colour with the Head. The Flesh is of a greenish Yellow, when first cut; but soon changes to a dirty Green. It is the *Fungus Italicus fuscus, pilcolo putulo, pediculo tumescete, & in apice rubro*, Cimecl. Reg. Vaill.

Boletus pileo castanei coloris, poris albidis, pediculo ovali. Fungus porosus, pediculo ovali, pilcoli superficiei castanea. Vaill. 60.

The Stalk is of the same Colour with the Head: The Flesh is white, and does not change Colour when it is cut. Vaill.

Boletus fuscus, pediculo tumescete. Fungus porosus fuscus, pediculo tumescete, Vaill. 60.

What is usually understood by the *Boletus*, is the *BOLLETO*, Offic. *Tubera Cervina*, C. B. 376. Park. 1320. Hill. Oxon. 3. 638. *Tubera perniciosa terrestria sive cervina*, Steib. 315. Tab. 32. B. *Tuberum genus quibusdam Cervi Boletus*, J. B. 3. 851. Raii Hist. 1. 111. *Cervi Boletus*, Chab. 591. DEERS-BALLS. &

These are digg'd out of the Earth; and the Whole of them are used, which is as large as a Walnut, of an unequal Surface, externally of a cineritious, but internally of a whitish-purple Colour, and of a grateful Taste.

It is rarely used, tho' some recommend it as a powerful *Stimulus* to Veneris, and a Medicine very proper for increasing Milk. Its external Use is recommended in hysterical Disorders, and hard Labours. Dale from Schroder.

BOLISMUS. This Word occurs in *Avicenna*, where it is written, by Mistake, for *BULIMUS*. *Castellus*.

BOLUS. A Bole, or Bolus. The Form of a Medicine.

A *Bolus* is an internal Medicine, soft, coherent, a little thicker than Honey, and whose Quantity is a little Morfel or Mouthful; for which Reason it is by some call'd *Buccella*.

Whatever is fit for internal Use, either by itself, or when mix'd with other Substances, provided it is capable of the above-mention'd Consistence, is a proper Material for the Composition of a *Bolus*, and may be applied to that Purpose: Such are all dry Substances, which operate when exhibited in small Doses, and such as are proper only for forming Powders: These are call'd *Excipienta*, and are not capable alone of forming a *Bolus*.

Soft Substances, more or less thick, Conserves, Electuaries, soft Extracts, Robs, Pulps, soft Confections, thick, native, and saccharous Balsams, potable Ointments, and Syrups, are call'd the *Excipientia*; because, when mix'd with the above-mentioned Substances, they constitute the Form of a *Bolus*, which some of the *Excipientia* naturally have of themselves.

Liquid Substances, which are given in smaller Doses, such as liquid Balsams, whether native or saccharous, Oils, Spirits, Tinctures, Essences, and Elixirs, being of themselves unfit for the Form of a *Bolus*, are either received into other Ingredients, or receive others into them, before they can become proper for this Purpose.

The Choice of proper Materials for a *Bolus* is regulated by the following Considerations.

A due Cohesion, Softness, and an equable Mixture, are highly commendable, and essential at least to the due Consistence of a *Bolus*.

For this Reason dry Substances, or such as are liquid, are not by themselves proper for this Purpose; but some Ingredients of a soft and glutinous Quality must be interposed, before the due Consistence of a *Bolus* can be produced.

Most soft Substances must also be inspissated by the Addition

of some dry Ingredients, for the Formation of a *Bolus*; yet some of them are of themselves sufficient for this Purpose, such as the thicker Conserves, Electuaries, and Robs. These may therefore be used by way of a simple *Bolus*.

All the Ingredients of a *Bolus* ought to be of such a Nature, as to be capable of being mix'd up, and form'd into an equable Composition.

Acrid Substances, such as are offensive either by their Smell or Taste, and such as are viscid, are more properly exhibited in the Form of a *Bolus*, than in that of Powders; since, in the former Shape, their disagreeable Qualities are much better conceal'd than in the latter; for which Reason the Form of a *Bolus* is the most proper Vehicle for the more strong and drastic Preparations of Mercury.

It is proper to divide pinguious Substances, Balsams, and potable Ointments, by mixing them with Sugar, or some other dry Ingredients, that they may be the more easily swallow'd down, and dissolved in the Stomach.

Alcaline, fix'd, and volatile Salts, and all other Substances which soon become liquid, are very improperly made Ingredients in a *Bolus*, which is intended to be kept for any considerable Time; since, by their Colliquation, the due Consistence of the *Bolus* is lost, and its Virtues destroy'd by their Exhalation.

For this Reason Substances which produce an Effervescence, or easily ferment when mix'd together, are highly improper for the Formation of a *Bolus*, unless the Patient is to use it immediately after it is prepar'd.

The Number of Ingredients in a *Bolus* ought scarce ever to exceed three or four.

The most usual Order observed in prescribing the Ingredients of a *Bolus*, is, first, to specify the Quantity of the *Excipient*; then the Quantity of the *Excipienta*, or dry Ingredients, is to be determin'd; then that of the Liquids; and lastly, if there is any more of the *Excipient* to be added, at the Apothecary's Discretion, that Circumstance is to be mention'd.

The Dose of a *Bolus* may be extended from one Dram to one Dram and an half, or two Drams; but is not rashly to be augmented beyond the last-mention'd Quantity, unless when the Materials of the *Bolus* are of a considerable specific Gravity, or when the Patient can take them without Reluctance or Uneasiness; but the Dose ought scarcely to exceed a Dram, if the Ingredients are light. For this Reason, when the Quantity of the Ingredients must exceed these Bounds, before it prove an effectual Dose, it is better to divide the Mass into several *Boluses*, than to choak and disgust the Patient by one that is unconscionably and extravagantly large; for as Smallness of Bulk is a great Recommendation to a Powder, it is much more so to a *Bolus*; so that, in this respect, we can scarce err, tho' the Quantity of the *Bolus* should scarce exceed a Scruple.

The Number of *Boluses* made at a time, is, for the most part, only one or two, and rarely three or four Doses, unless when they are to be taken at very short Intervals; for, when they are divided by the Apothecary, they readily become too dry, or are melted down, when kept for any considerable time.

The mutual Proportion of the Ingredients is to be determin'd by their Consistence, and their Efficacy; so that the same Proportion is not to be observed promiscuously in the Composition of all *Boluses*.

When soft Substances, each of which is of itself fit to form a *Bolus*, are compounded, the Proportion in which they are to be mix'd must be determin'd by the Quantity of each, which proves an effectual Dose when exhibited by itself, and by the Quantity of the compound *Bolus* which must be a Dose; for, in this Case, the Consistence is not to be consider'd.

When dry Substances are to be incorporated with any *Excipient*, the Dose of them may be half a Dram two Scruples, or at most one Dram; but the Proportion of Excipients must be varied, according as they are of a thicker or thinner Consistence.

The Substances most commonly us'd for *Excipients* are Conserves, Electuaries, Honey, thick Balsams, and potable Ointments; and the Quantity of these to be us'd is from two Scruples to one Dram, or one Dram and an half. When Robs, Pulps, and soft Confections, are us'd as *Excipients*, their Quantity may be from half a Dram to one Dram, or four Scruples.

When Syrups are us'd for this Purpose, as they are more liquid than the above-mention'd *Excipients*, their Quantity may be from one Scruple to half a Dram, or one Dram.

For, when the Quantities of dry Ingredients are the same, the more liquid the *Excipient* is, the less of it is requisite in order to subdue them, or reduce them to the Consistence of a *Bolus*.

Hence 'tis obvious, that, when the Quantity of dry Ingredients is small, 'tis proper to use thick *Excipients*; whereas, when 'tis large, thin *Excipients* must be us'd, lest the Dose of the *Bolus* should be enlarg'd to an unreasonable or improper Bulk.

If to the above-mention'd Ingredients Liquids are to be added, we must not exceed the Quantity of one, two, three, or, at most,

BOL

most, four Drops; and, even in this Case, the Quantity of the soft *Excipients* is to be lessen'd in a due Proportion.

On some Occasions, the precise Quantities both of the dry and liquid Ingredients being determin'd and fix'd, the Proportion of the soft *Excipients* is left to the Discretion of the Apothecary, to whom the Physician's Meaning is convey'd by the two significant Letters Q. S. which import a sufficient Quantity. But this Method cannot be us'd, if a small Dose of these Ingredients is capable of considerable Effects: But when the Quantity of dry Ingredients is pretty large, or when the primary *Excipient* is desir'd thick, and in so small a Quantity, that 'tis dubious whether the soft and delicate Consistence of a Bolus can be produc'd by it, there is often a secondary and more liquid *Excipient* added; a sufficient Quantity, for Instance, of some Syrup.

On the contrary, when the too great Softness of the Bolus is dreaded, 'tis customary to add a sufficient Quantity of Sugar, Powder of Liquorice, or some other proper Substance; which Practice is principally us'd in making up pure terebinthinous Ingredients.

The *Subscription* runs thus: *M. F. Bolus*, or *Boli*, No. ij. iij. that is, mix up into a Bolus, or into two or three Boluses. As to the Division of the Doses, when the Ingredients are of a strong and drastic Quality, the Division must be made with the utmost Accuracy and Exactness. Sometimes, for the sake of Ornament, or that the Patient may swallow the Medicine with the less Reluctance, it is added, *Auri Folio aut Nebula obvolvatur*, or *exhibeatur cum Nebula*; that is, *Let it be wrapp'd up in Leaf-gold, or a Wafer*, or *let it be exhibited in a Wafer*. The Bolus is generally put into a small Gally-pot, or a Paper; but these are Circumstances too trivial to be mention'd.

The *Signature* must specify the Design of the Bolus, the Dose, the Vehicle, the Time of taking it; and the Regimen to be us'd. Some love a *Wafer* for a Vehicle; and others choose to have the Bolus previously dissolv'd in some Liquor. It is proper to give some convenient Liquor to be drank after taking the Bolus, if we suspect, that it will be dissolv'd slowly, and with Difficulty, in the Stomach; and this Caution is principally to be observ'd with regard to terebinthinous Substances; and others of a like Nature.

The Use of Boluses is almost universal, either as Evacuants or Alteratives; only we ought carefully to consider, whether the Nature of the Disease, its Seat, its Symptoms, the Constitution of the Patient, Custom, and the Nature of the indicated Relief, do not render such a Formula improper. The Difficulty, or absolute Incapacity, of Deglutition in Quinsys, Ulcers of the Fauces, Apoplexies, Epilepsies, and Syncope, seem to forbid, or, at least, render Boluses highly improper. Tho' Boluses are design'd for the same Intentions with Powders, yet they are less frequently us'd, because they do not always produce their Effects so soon as could be wish'd. Those who are delighted with Variety, or choose a Bolus rather than Powders, are to be gratify'd with this Form.

For Specimens of Boluses, take the following.

An Emetic Bolus, for a full-grown Person.

Take of white Vitriol, twenty-five Grains; Rob of Juniper, a sufficient Quantity: Mix up into a Bolus to be exhibited in a Wafer.

Signature: An Emetic Bolus to be taken in a little Ale, or an Infusion of Green-tea. Let some Draughts of the same Infusion be drank tepid, after every Time of vomiting.

A PURGATIVE BOLUS, to be exhibited in a feverish Restlessness.

Take of the Electuarius Diaprunum of Sylvius, one Dram and an half; and of the Powder of Sena-leaves, one Scruple: Mix up into a Bolus.

An ANTIHYSTERIC BOLUS.

Take of Mithridate, one Dram; of the Troches of Myrrh, half a Scruple; of the distill'd Oil of Amber, two Drops: Mix up into a Bolus, to be wrapt up in Gold-leaf.

Signature: A Sedative Bolus, to be taken in a Glass of Penny-royal Water.

A BALSAMIC BOLUS. See Harris de Morb. Infant. Lib. 2. Observat. 2.

Take of the Turpentine of Chios, two Drams; of Liquorice-powder, a sufficient Quantity: Mix and make two Boluses.

Signature: The Nervous Boluses, one of which is to be taken in the Morning, and the other in the Evening, in the Yolk of a new-laid Egg, drinking after each two Ounces of alexiterial Milk-water.

SALIVATING BOLUSES: See Boerhaave's Mat.

Take of the Conserve of red Roses, half a Dram; of Mercurius Dulcis triturated, nine Grains: Mix up into a Bolus. And two others, exactly the same, but made up separately, are to be deliver'd, put up in different Wafers.

Signature: Aperient Boluses, one of which the Patient is to take every four Hours, having first drank a large Quantity of some proper Ptfan.

VOL. I.

BOL

ASTRINGENT BOLUSES.

Take Rob of the Cornelian-cherry, three Drams; Extract of Tormentil, one Dram; Armenian Bole levigated, two Scruples; Prepar'd Blood-stone, half a Dram; Syrup of Myrtles, a sufficient Quantity: Mix, and make four Boluses.

Signature: The astringent Boluses, one of which is to be taken every three Hours, in a little austere red Wine.

There are many fat Earths us'd in Medicine, which go by the Name of BOLI, Boles; as the

BOLUS ARMENA, Offic. *Bolus Armena Orientalis*, Mont. Exot. 13. *Bolus Orientalis*, Charlt. Foss. 5. Calc. Mus. 111. *Bolus Armena, sive Armeniaca*, Dugd. Ind. 118. *Bolus Orientalis, quibusdam Armena*, Worm: Mus. 11. *Bolus seu Terra Armenia*, Aldrov. Mus. Metall. 269. *Bolus Armenius verus*, Kentm. 7. *Bolus vera quibusdam*. BOLE-ARMONIAE. Dale.

It is an earthy Substance, of a pale-yellowish Colour, inclining somewhat to Red. It is ponderous, pinguious, easily friable, and of a styptic Taste. It is digg'd out of the Mines in Turkey, and thence brought to us. It is, at present, very rare with us; for what is found in the Shops, approaching to the Colour of red Okre, is imported from Spain and Normandy, and is thought to be little different from the *Rubrica synopica*.

It is an Alexipharmic, and corrects those Acidities in the Blood which are prejudicial to Health. It is astringent in some Degree, and, for that Reason, us'd in Fluxions of Humours. When apply'd externally, it is of a drying Quality, and induces Cicatrices on Wounds. Dale.

Fracastrorius says, that Bole Armoniac given to a Person almost in the Agonies of Death, from the Bite of a Spider, instantly cur'd him.

BOLUS ARMENA ALBA, Mont. Exot. 13. WHITE ARMENIAN BOLE. Dale.

This Bole is brought from Armenia. Its Virtues are the same with those of the Bole Armoniac, but it is not to be met with in our Shops. Dale.

BOLUS ARMENA LUTEA, Mont. Exot. 13. *Bolus luteus Theophrasti*, Kentm. 7. *Bolus Armenus naturalis flavus*, Aldrov. Mus. Metall. 270. *An Terra Arabica sigillata sublutea*, Charlt. Foss. 6. YELLOW ARMENIAN BOLE.

This Bole adheres to the Tongue, is a strong Astringent, and said to be a powerful Refister of Malignity. Dale.

BOLUS BLESENSIS, Ind. Med. 21. EARTH OF BLOIS.

This is an Earth of a pale-reddish Colour; but I have never met with any Accounts of its Virtues, or its Use in Medicine. Dale.

BOLUS BOHEMICA, Offic. Aldrov. Mus. Metall. 271. *Bolus Bohemicus rubens*, Kentm. 7. GERMAN BOLE.

It is an earthy Substance, of the same Colour with the Oriental Bole Armoniac, but somewhat fainter. It has some Veins of a yellowish Colour running thro' it, and is heavy, easily friable, and of an astringent Taste. It is digg'd from the Mines of Bohemia, and thence imported to us.

Its Virtues are the same with those of the Bole Armoniac, and it is much kept in our Shops. *Aldrovandus* informs us, that it is a very efficacious Medicine in all exanthematous Fevers. Dale.

BOLUS CANDIDUS, Offic. *Bolus candidus Lignicensis, seu Terra sigillata Goltbergenfis*, Charlt. Foss. 5. Worm. Mus. 10. *Bolus candidus Lignicensis*, Schw. Foss. 397. *Terra sigillata Lignicensis*, Schrod. 318. Aldrov. Mus. Metall. 265. *Unicornu Minerale*, Schrod. 111. 318. *Axungia Lunæ Chymicis*. WHITE BOLE.

This Bole is digg'd from the Earth at Gran in Hungary, and at Goltberg in Liege.

It relieves and mitigates Pains of the Head, strengthens the Brain, and is singularly efficacious in curing Dysenteries, and the Fluor Albus. Dale.

BOLUS RUBRA NOSTRAS, Ind. Med. 21. FRENCH BOLE.

Dale confesses he knows nothing of this Bole. I take it to be the red French Bole, which is got in many Parts of France. *Pomet* gives the ensuing Account of the French Boles.

"The Bole which we sell is found in several Parts of France, about Blois and Saumur, or Bourgogne, and which is of various Colours, as grey, red, and yellow. The Yellow is the most valuable, because it passes the readiest for Bole of the Levant, and because it fits the Gilders best.

"As these Boles are the dearest, because of the Charge of transporting them to Paris from Blois and Saumur, we prefer that of Baviile and other Places about Paris, because the Peasants bring it us at a cheaper Rate than we can buy the other. The best is the cleanest, smoothest, and well-colour'd, of a light-yellowish Red, which, being tasted, seems to melt, like Butter, in the Mouth. Its Thickness is known by sticking to the Tongue. The counterfeit or adulterate Bole is of a sad-deep Red, sandy, and gritty, being, indeed, not of a third Part of the Price. It is very drying

B O M

“ and astringent, good against Fluxes and Gleet. It thickens thin Humours, resists Putrefaction, and expels poisonous Bodies. It is likewise us'd in spitting of Blood, bleeding Wounds, and also to consolidate broken Bones, and strengthen weak Limbs. ”

BOLUS TOCCA VIENSIS, Offic. Charlt. Foss. 5. Worm. Musf. 2. *Bolus Hungaricus*, Crato. *Bolus Tokaicus*, Schw. 370. *Bolus Pannonicus verus*, Kentm. 7. **TRANSYLVANIAN BOLE**.

This *Bole* has all the Characteristics of the true *Armenian Bole*, and melts in the Mouth like Butter. It is digg'd from the Earth in *Transylvania* near *Tokai*.

It is highly celebrated as an efficacious Medicine in Catarrhs and the Plague. It was first apply'd to medicinal Purposes by *Crato*, who prefers it to the *Armenian Bole* brought from *Turky*. I cannot determine whether it is really different from all the former or not. *Dale*.

BOLUS FABRILIS. The same as *Rubrica Fabrilis*, which see.

BOLUS JUDAICUS. A Name for the *Althæa*, Marsh-mallows. *Johnson*.

BOMBAX, Offic. *Gossypium sive Xylon*, Ger. 753. Emac. 901. *Gossypium frutescens annuum*, Park. Theat. 1553. *Gossypium frutescens, semine nigro*, C. B. Pin. 430. *Xylon sive Gossypium herbaceum*, J. B. 1. 343. Raii Hist. 2. 1064. Tourn. Inst. 101. Elem. Bot. 84. Boerh. Ind. A. 273. *Gossypium herbaceum, semine albo*, Hist. Oxon. 3. 517. **COTTON-BUSH**. *Dale*.

The Cotton-bush, or Shrub, grows to be a Yard high, or more, spread out into many Branches, with many brittle woody Stalks, on which grow Leaves, divided into five Segments, not much unlike the Leaves of Maple, standing on pretty long Foot-stalks; among these, on the Upper-part of the Branches, grow the Flowers, of a pale-yellow Colour, with a purple Bottom, in Shape like those of Mallows, or the Small Holy-oak, and are succeeded by roundish or oval Capsulæ or Seed-vessels, which, when ripe, open into three usually, and sometimes four Partitions, discovering the white soft Cotton, among which lies dark-brown, longish, round Seed.

Cotton is cultivated in *Greece*, *Turky*, *Sicily*, and *Malta*. It flowers in *June*.

The Seed, which is the only Part us'd, is of a balsamic Nature, us'd in Coughs, Shortness of Breath, and Soreness of the Lungs, causing Expectoration, and freeing them from tough Phlegm. It is also restringent, and good to stop Fluxes of all Sorts. *Müller's Bot. Off.*

In the Shops the Seeds and Wool of this Shrub are us'd. The Wool burn'd, and reduc'd to Powder, stops the Effusion of Blood from Wounds, if put into them. The Seeds are good for Disorders of the Kidneys and Liver, but prejudicial to the Head and Stomach. They are also esteemed excellent for those who are afflicted with a Cough, or Difficulty of breathing. They are good for the Stone, yield a wholesome Nourishment, strengthen the Constitution, and cure the Dysentery; for, by their lenitive Quality, they obtund the acrid and exulcerating Humours. *Casp. Hoffmann. de Medic. offic. L. 2. C. 105.* The Oil expressed from the Seeds removes Spots of the Skin, and cures running Sores of the Head. *Zacut. Lusitan. Prax. Hist. L. 1. C. 2. in Obs.* In *Egypt*, according to *Prosper Alpinus*, they extract a Mucilage from the Seeds, just as they do from those of the Fleabane and Quinces, which is of Use in burning Fevers, and corrosive Coughs. They also restrain all immoderate Fluxes of the Menstrues. *Rein. Solenand. Consil. Medic. 8. Sect. 4.* The Inhabitants of *Malta* fatten their Cattle with the Seeds of this Herb, which have a Taste resembling that of an Acorn. See *Heur. Bunting. Itinerar. S. S. p. 2. fol. 95.* See also *Pliny, L. 12. C. 10 & 11. Theophrast. de Plantis, L. 9. C. 4. Claud. Salmas. ad Solin. p. 2. 296. and 998. and Erasim. Francisc. Part. 1. p. 552. Barthol. Zorn. Botanolog.*

BOMBUS. *Βόμβας*. A Word made to imitate a Sound, by a Figure the Rhetoricians call *Onomatopæia*; a resounding, ringing Noise, proceeding from Blasts which break out of a narrow Passage, and diffuse themselves abroad; but if those Blasts fall into a narrow Passage, and vent themselves, as it were, thro' Chinks, there is heard a Stridor, a grating Noise, or an Hissing. In *Coac. Βόμβας ἐν ὀξείσι, καὶ ἡχος ἐν ἀσπί, θανάσιμον*, “ a resounding Noise, and Ringing in the Ears, in acute Diseases, is mortal. ”

BOMBYLIUM. *Βομβύλιον* is expounded in *Galen's* Exegesis by a narrow-mouth'd Cup, or a Cover, so call'd from its ringing Sound. The Word occurs, *Lib. 3. de Morb. καὶ διονο γλυκὺν καὶ ὕδαρτα ποτίειν, μὴ ψυχρὸν, ὀλίγον ἐκ βομβυλίου ποτίειν*. “ Let the Patient drink a little sweet diluted Wine, not cold, out of a wide-mouth'd Bombylium. ”

BOMBYX, Offic. Schrod. 5. 339. Goedart. 1. 112. T. 42. Lill. Ed. Angl. 41. N. 32. Mar. Eruc. Ort. 1. p. 1. Aldrov. de Insect. 278. Jons. de Insect. 114. The **SILK-WORM**.

This Insect undergoes a strange and surprising Metamorphosis in the several Periods of its Existence. This Animal, or Worm, is call'd *Bombyx* in the Shops, and is produced from

B O M

small Eggs, hatched by the genial Heat of the Sun, in the Spring of the Year. It feeds upon Mulberry-leaves 'till it has arriv'd at a State of Maturity. After this they are usually put into a small Paper-bag, where they wrap themselves up in a silken Case, which, coming from their Mouths, is, without Interruption, carry'd very often round them. This Case is sometimes of a palish, and sometimes of a yellowish Colour. In this Case, or Coat, it remains wrapt up, 'till it is transform'd into its *Chrysalis* or *Aurelia*, and appears dead; but, at last, it sallies forth from its Coat in the Form of a Butterfly, with four Wings; and after a Copulation, which lasts for three Days, and proves immediately mortal to the Male, the Female lays a considerable Number of Eggs, and dies likewise. The whole Worm, the Silk, and the silken Coat or Covering, are us'd in Medicine.

Silk-worms dry'd, and reduc'd to a Powder, are, by some, apply'd to the Crown of the Head for removing Vertigos and Convulsions. The Silk, and Case or Coat, are of a due Temperament between Heat and Cold, and corroborate and recruit the vital, natural, and animal Spirits. *Dale from Schroder.*

N. B. We must take care not to use the Coat or Case, if it is either stain'd with their Excrements, or if the *Aurelia* or Worm remains dead in it. *Dale*.

Silk yields by Distillation, a very good volatile Spirit and Salt; which Spirit is said to be the *Guttæ Goddardianæ*, *Goddard's Drops*, formerly so famous.

BOMPOURNICKEL. A Sort of very coarse black Bread, much us'd in *Westphalia*, on which *Hoffman* gives the following Dissertation.

'Tis a Truth not to be call'd in question, that the Bodies of Animals, being incessantly and variously agitated by the Heat and perpetual Motion of their Fluids, do, by that very means, continually lose some of their Parts, and, consequently, stand in need of a seasonable Supply and Reparation of them.

This Supply or Reparation is advantageously made by Aliments, which nourish and support our Bodies, and supply the Place of the wasted eliminated Humours, assuming their Natures, and transforming themselves into Blood and Juices. But, of the several kinds of Aliment, Bread is the principal and most considerable; for, according to *Ipsidorus*, the *Latin Word Panis*, which signifies Bread, is derived from the *Greek Word Πᾶν*, which imports as much as the *English Expression, All in all*. 'Tis certain that Bread is, as it were, the Basis of Food, and an universal Aliment, which is highly agreeable to the Constitution, and grateful to the Stomach; and which has not only been daily us'd, but highly approv'd by most Nations of the World, from the very Infancy of Mankind to this present Time; so that it is with good Reason call'd the chief or principal of Aliments: And, indeed, all the farinaceous Grains, and the Bread prepar'd of them, contain Principles more similar to our vital Juices, than any other Substances us'd in Food.

For 'tis certain, that the Fluids of our Bodies are composed of Corpuscles of widely different Figures and Bulks; and that they contain, as we find from Chymical Processes, a Variety of Principles or Elements; Sulphur, for Instance, Oil, volatile Salt, Mucilage, Earth, Water, and other Principles of a like Nature. The like Elements are contain'd in Bread; for, upon Distillation, it yields an oleous, and somewhat acid, Spirit, which, besides other Substances, speedily dissolves Coral, and, by a previous Digestion, produces a reddish Tincture, which is a Medicine of considerable Efficacy. Bread also yields a large Quantity of an inflammable Oil, and a great deal of a black fix'd Earth is found at the Bottom of the Vessel after its Distillation. As for the thick and mucilaginous Substance it contains, it is obvious to our Senses, without the Assistance of Chymistry. That it contains subtil spirituous Parts, of a comforting Quality, is not only proved by the Authority of Sacred Writ, but by the Evidence of Sense; for the very Smell of Bread is refreshing, and Water prepar'd of Bread, especially of the coarser kind, is, by Physicians, highly extoll'd as a Liquor of an analeptic and cordial Quality. Its daily Use also proves, that it conveys Strength and Nourishment to the Body. Besides, the Stomach is greatly delighted with this Species of Aliment, on account of its mild and subtil Acid, by whose means the dissolvent Force and Activity of the Menstruum, appropriated for the Maceration and Digestion of Food, is highly increased and augmented.

A great many other Things known to the Antients concerning the Nature, Virtue, and various Kinds of Bread, might on this Occasion be advanced, were they necessary to my present Design. However, on this Subject the Reader may consult *Hippocr. L. 2. de Viét. Rat. Athenæus, L. 3. Cap. 17. & 18. Pollux, L. 7. Cap. 11. and Pliny, L. 18. Cap. 7.*

My present Design is only carefully, but briefly, to inquire into the Nature and Qualities of that coarse Bread used by the Inhabitants of *Westphalia*, which acquir'd the Name of *Bompournickel*, from a *French Traveller*, that I may rescue this Bread from the Contempt it lies under in the Opinions of many.

This Species of Bread was known long ago to some of the most antient Nations, under the Name of *Panis furfuraceus*,

or-furfuraceous Bread, because it was not thoroughly purged from the Bran, according to *Aulus Gellius*, L. 2. Cap. 9. It was also called *Panis impurus*, impure Bread. See *Hippocrates*. *Athenæus*, L. 3. calls it *Syncomiston*, prepar'd of unsifted Meal. He also called it *Coliphium*, from the Greek Words κολοι, a Member, and ιστι, Strength, importing that it convey'd Strength to the Members of the Body. See *Petr. Faber Agonistices* L. 3. Cap. 3. By *Cælius Rhodiginus*, L. 9. C. 16. it is called *Panis cibarius*, and *Panis gregarius*; and by *Terence*, *Panis ater*.

This kind of Bread was always highly esteemed, both for nourishing the Body, and rendering it strong and robust: Hence furfuraceous Bread was among the *Greeks* called πολυτεφεώτερον, that is, Bread which contains a great deal of Nourishment; whereas that which was made of Flour, or the finest Meal, was called λιγοτεφεώτερον, or Bread which yields little Nourishment, according to *Athenæus*, in the above-quoted Book. For this Reason the Wrestlers of old, whose Limbs were of a large and robust Make, and who were full of Flesh and Blood, only used the Coliphium, or coarse Bread, for Dinner, and at Supper Swines Flesh, not boil'd, but a little roasted by the Fire: They also drank warm Water, not only that they might receive the more Nourishment from their gross and thick Food, but that they might also be the longer sensible of the saturating and filling Quality of it. See *Petrus Faber*, in the above-mention'd Book; as also *Galen de Alimentis*, and *Arrianus*, Lib. 3. *Verrius* in *Pliny* informs us, that the Roman People, for three hundred Years, used only the Bran of their Corn. See *Fulvii Ursini Append.* p. 316. For this hard and firm Food generates Humours less subject to Corruption, nourishes much more than that which is soft and fine, resists Hunger more powerfully, and produces Bodies fitter for bearing Hardships and Injuries, and less subject to those Disorders which proceed from a Colliquation of the Blood generally resulting from its excessive Heat.

The Inhabitants of *Westphalia*, who are a hardy and robust Race of People, capable of enduring the greatest Fatigue, and undergoing the severest Hardships, are living Proofs of the salutary Qualities of *Bonpournickel*. 'Tis remarkable that the *Westphalians* are rarely attack'd by acute Fevers, and those Diseases which proceed from an Ebullition of the Humours, and a certain malignant Colliquation of the Blood, and of the Elements or Principles of which it is composed. But the Diseases which rage among them are of a cold and chronical Nature, a Circumstance to be ascrib'd to the Grossness of their Food, and Hardness of their Diet: For, when but a small Quantity of such Aliments as are disposed and prepared for a speedy Corruption is taken, the Humours undergo a slow and less violent Fermentation: Hence an Excess of Heat is prevented by the Cohesion of the viscid Parts. Nor can the Humours of the Body, which have acquir'd a firm and durable Texture, be easily broken and destroy'd by a preternatural and morbose Ferment; and I am actually of Opinion, that the masterly Turn of Genius, the Evenness of Temper, and the happy Judgment of transacting Business, with which the *Westphalians* are peculiarly blessed, as also their Promotions in foreign Countries both in Church and State, preferable to the Natives, are Circumstances to be ascribed partly to their Education, and partly to their Method of living. They are highly qualified for Labour and Industry, to which they are inur'd and habituated from their Infancy. Now, as People, by doing nothing, insensibly learn to do ill, so, by Diligence in the honest Employments of Life, the Seeds of Vice, and the Exorbitance of lawless Passions, are check'd in due Time. And the Method of living used by the *Westphalians* contributes not a little to the Production of this happy Effect. *Aristotle*, Lib. 1. Pol. 3. judiciously observes, that a Diversity of Food and Aliment produces a proportionable Diversity in the Lives and Morals of Men; nor is this asserted without a Reason. Since there is a continual Commerce, and an intimate Union between the Soul and the Body, such as are the State and Motion of what we call the animal Spirits, such also will be the Inclinations, Thoughts, Operations of the Mind, and Morals. But this is a Truth so well known to Physicians, and confirmed by Arguments so strong and irrefragable, that it does not, on this Occasion, stand in need of a farther Illustration.

Nor can it be said, that the gross Food used by the *Westphalians* generates gross Spirits; for, by Labour and Motion, the viscid Particles are sufficiently divided, and, as it were, prepar'd in such a manner, as not only to increase the Bulk of the solid Parts, by a closer Union and Adhesion to the Tubes, but also generates sufficiently firm Spirits, which, as they are not fluctuating and inconstant, render People fit for bearing the most obstinate Labours both of the Body and Mind; and, tho' their Blood is somewhat cold, yet their animal Spirits are of a sufficiently active Quality. It is obvious, that an intestine Spirit, which resides in the Pores of any Fluid, must be confin'd by the Pressure of the thick and rigid Parts, and of

course become less subject to Dissipation; so that the spirituous Parts, being forc'd to the Centre, and render'd stronger by a mutual Union, are possessed of an uncommon Force and Energy.

But 'tis not to be denied, that this gross Food is less safe and salutary, for such as have the Misfortune of weakly Constitutions, or those who live a quiet and idle Life, or are not accusom'd to Labour. Hence *Hippocrates*, *de Medicina* prife. justly observes, "That the stronger Aliments, if subdued by Nature, are excellent Nourishers; if not, they produce Pains, and cold Diseases." And *Celsus* informs us, "That the stronger Foods are not easily concocted; but that, when concocted, they nourish more than other Aliments." So that Labour and Motion are absolutely necessary for those who use strong Aliments. Athletic Bodies, and such as are accusom'd to Labour and Exercise, receive a more solid Nourishment than those who are habituated to a calm and idle Life, in whom the Nutrition, and the Fat produc'd by it, are generally suspected of being faulty; for 'tis the Motion and Circulation of the Blood, which by its internal Attrition, and elastic Force, resolves, subdues, deterges, and converts the Particles of the Aliments into the Substance of our Bodies; whereas Rest destroys Nutrition, and generates Obstructions, which prove a fruitful Source of Diseases, and render the Genius slow and fluctuating.

From what has been said, I think it evidently appears, that the *Westphalian Bonpournickel* is of a highly nourishing Quality; and that this firm and strong Species of Aliment, by which both their Bodies and Minds are recruited, may be more safely used, and produce more salutary Effects in these People, who are accusom'd to Labour, than a more delicate Diet can in those who are habituated to Idleness. Besides, if we will but take the Pains to put this Matter to the Test of Reason, many satisfactory Proofs of the Excellency of the *Westphalian* Bread occur; for the Nature and Qualities of this gross furfuraceous Bread, are widely different from those of that which is made of the finest Meal. The coarse *Westphalian* Bread, upon Distillation, yields a very large Quantity of an empyreumatic inflammable Oil. Bread indifferently fine, such as that commonly called *Second Bread*, yields a moderate Quantity of a similar Oil: But Bread of the finest Flour yields a very small Quantity, or rather none at all of it. Besides, Bran itself, upon Distillation, yields a large Quantity of Oil, produced, in my Opinion, from the hard external Husk, which is continually acted upon by the Warmth of the ambient Atmosphere. Now 'tis very well known, that a distill'd Oil is an active Principle, highly agreeable to our Constitutions, suited to the Mass of Blood; a Balsam, as it were, to the Humours, and a faithful Guardian of a due and natural Temperament. The Blood itself, upon Distillation, yields an inflammable Oil; and the more it partakes of this oleaginous Principle, the greater Strength it supplies, and the more effectually it preserves Life and Health. That distill'd Oils are the Repository, and, as it were, the Matrix of a volatile Salt, with which the animal Kingdom abounds, is a Truth sufficiently known to those who have any tolerable Acquaintance with Chymistry.

From what has been said, we may easily see, how much *Bonpournickel* is preferable to other Kinds of Bread. It may justly be called a medicinal Aliment, since, besides that Quality by which it is so friendly to our Constitutions, it is possessed of another, by which it remarkably restores Strength, corrects a moist Intemperies, dries, defends from Putrefaction, and recruits the spent and dissipated Spirits: For which Reason it may be exhibited as a Medicine, in Cases where Strength is lost, where the Force and due Texture of the Blood is destroy'd, and where a Dissipation of Spirits is dreaded, either in Broth impregnated with Wine, Sugar, and Cinnamon, or in its own distill'd Water of a highly sweet Taste, which is excellent in Loss of Strength, and phthisical and hæctical Disorders. I need not, on this Occasion, mention its singular Use, when apply'd externally in Pains of the Head, and in Cases where the Intention is to dissipate stagnating Humours.

Lastly, this coarse Bread is possess'd of a singular Quality not to be found in other Bread, since, notwithstanding the Coarseness of its Texture, it renders the Belly soluble. This Virtue in coarse Bread was long ago observed by *Hippocrates*, who affirms, "That Bread made of unsifted Meal is purgative, whereas that which is purer, is proportionably less so; and that which is purest of all, is so far from operating in this way, that it renders People costive." I am of Opinion, that this purgative Quality is to be ascribed to the rigid Texture and Figure of the Bran, which proves a quick and continual Stimulus to the small intestinal Fibres, to perform their excretory Motion; for, according to *Galen*, Bran is possess'd of a deterfive Quality. Hence we may observe, that Gruels made of coarse Meal are excellently qualified for keeping the Belly soluble.

As for the Medicines prepared of this *Bonpournickel*, the principal and most celebrated is the following Water, which is excellent

B O N

excellent for restoring Strength, and recruiting the homogeneous Humidity of the Body in hectic Heats. It is prepared thus :

Take one Pound of the Bread bruised ; of the Juice of Crayfish, half a Pound ; of May Dew, four Pounds ; of Rose-water, four Ounces ; of Nutmegs, half an Ounce ; and of Saffron, one Dram : Let the Whole be distilled together in *Balneo Mariæ*, applying a moderate Heat.

Thus a highly cordial Water is yielded, of a fragrant Smell, grateful to the Stomach, and excellently calculated for allaying hectic Heats ; for which Purpose half a Pint of it must be taken daily, either by itself, or with Powder of calcined Hartshorn.

Besides, if a spirituous stomachic Water is desired, this Bread is to be distilled with Rhenish-wine, adding a sufficient Quantity of Nutmegs and Cinnamon. By this Process a Water is yielded which is of singular Service for strengthening the Stomach, when afflicted with an excessive Relaxation, Vomiting, or Loss of Appetite. Besides, the Spirit of this Bread when distilled dry in a Retort, and well purged from its fetid Oil, is a sudorific Medicine agreeable enough to the human Constitution, and highly efficacious in removing Impurities of the Blood. If this Spirit is exposed for some time to the Rays of the Sun, it assumes a reddish Colour. The Virtues and Excellencies of this Spirit are more fully insisted on by *Job. Tackius in Chrysog. Anim. Hoffman Obs. Chym.*

BON. The Coffee-tree, or *JASMINOIDES*, which see.

BONA, or BOONA, in *Blancard*, is the Bean, or Kidney-bean.

BONASUS. A kind of wild Ox, as high as a Bull, and bigger than a common Ox. His Head and Neck are covered with great yellow Hairs, longer and softer than those of a Horse. His Horns are turned inward, so that they are no great Defence to him ; their Colour is a fine shining Black. The Hair of his Body is ash-coloured Grey, inclining to Red. His Skin is very hard, and Proof against Blows ; and he lows like an Ox. He is found between *Pavonia* and *Media*, and lives among the Mountains. His Flesh is very good Food.

His Horns are astringent, sudorific, and alexipharmac. *Lemery de Drogues.*

BONATI is explained by *Rulandus vitreati*. I suppose glazed.

BONDUCH, Offic. *Bonduch Indorum*, *Jons. Dendr.* 300. *Bonduch cinerea, foliis longioribus*, *Aët. Philos. Lond. N.* 267, 702. *Bonduch vulgare majus polyphyllum*, *Plum. Nov. Gen.* 25. *Boerh. Ind. A.* 2. 59. *Bonduch Pianta Indiano*, *Zan.* 44. *Bonduch Indiano*, *Pon. Ital. Bald.* 32. *Arbor exotica spinosa, foliis lentisci*, *C. B. Pin.* 399. *Raii Hist.* 2. 1743. *Herm. Mus. Zeyl.* 35. *Arbor spinosa Indica, muricatis siliquis*, *Park. Theat.* 1551. *Lobus echinatus*, or Bezoar Nuts, *Ger. Emac.* 1554. *Lobus echinatus, fructu casto, foliis longioribus*, *Herm. Parad. Bat. Prod.* 348. *Cat. Jam.* 144. *Hist.* 2. 41. *Lobus alius exoticus hirsutus cum pisco duro cinerei coloris*, *Chab.* 92. *Lobus exoticus cum pisco duro cinerei coloris*, *J. B.* 1. 439. *Acacia gloriosa, lentisci foliis, spinosa, flore spicato luteo, siliqua magna muricata*, *Pluk. Almag.* 4. *Phytog. Tab.* 2. *Fig.* 2. *Caretti*, *Hort. Mal.* 2. 35. *Tab.* 22. *Inimboy Brasiliensis*, *Marçg.* 12. *Inimboy Brasiliensis frutex spinosus spicatus platylabis echinodibus, glycyrrhizæ foliis*, *Breyn. Prod.* 1. 40. *Inimboia præ Sylva de praya Lusitanis*, *Pil.* 95. (Ed. 1648.) *Inimboy*, *Ejusd.* 205. (Ed. 1658.) *Crista pavonis glycyrrhizæ folio minor repens spinosissima, flore luteo spicato minimo, siliqua latissima echinata, semine rotundo cinereo, lineis circularibus cineto majore*, *Breyn. Prod.* 2. 38. *Commel. Flor. Mal.* 93. MOLUCCA NUTS, MARSAL, BEZOAR NUTS.

It grows to a Man's Height, and is a Native of both *Indies* ; the Parts in Use are the round Beans, which are of an Ash-colour, white on the Inside, extremely bitter, and tasteless.

They are good in Hernias, discaus Flatulencies, ease the Colic, comfort a weak Stomach, provoke the Menses, and expel the Stone. *Dale.*

There is another rarer Species of it barely mentioned by *Ray*, under the Title of *Bonduch Indorum, siliqua minime spinosa*.

BONIFACIA. The same as *Laurus Alexandrina*. See *LAURUS*. *Blancard.*

BONTIA. *Barbados* wild Olive vulgo.

It has a personated Flower, consisting of one Leaf, whose upper Lip is erect, and the under Lip divided into three Parts. From out of the Cup arises the Pointal, fixed like a Nail in the hinder Part of the Flower, which afterwards becomes an oval Fruit, which is soft, and full of Juice, in which is contained one oblong Seed, inclosed in a Nut of the same Form. *Miller's Dict. Vol.* 2.

We find no Medicinal Virtues ascribed to this Plant.

BONUM, ἀγαθόν, καλόν, Good. It signifies in general what a Person ought to chuse, do, or on which he may rely, according to *Galen, Lib. 7. de Hippocr. et Platon. Decr. Cap.* 2.

B O R

Bonum may be taken absolutely, or in itself, and comparatively, in which Sense it comprehends a less Evil. *Galen, C.* 20. in *Epid. t.* 36. *Castellus.*

BONUS HENRICUS, *Tota bona, Mercurialis*, Offic. *Bonus Henricus*, *J. B.* 2. 965. *Ger.* 259. *Emac.* 329. *Bonus Henricus, Tota bona*, *Chab.* 303. *Bonus Henricus officinarum*, *Volck.* 67. *Bonus Henricus, falso Mercurialis*, *Pharm. Edengb.* 4. *Blitum Bonus Henricus dictum*, *Raii Hist.* 1. 195. *Blitum perenne Bonus Henricus dictum*, *Synop.* 64. *Blitum perenne, spinachia facie*, *Hist. Oxon.* 2. 599. *Atriplex Chenopodia, folio triangulo*, *Hort. Monsp.* 29. *Chenopodium folio triangulo*, *El. Bot.* 406. *Tourn. Inst.* 506. *Dill. Cat.* 67. *Buxb.* 70. *Lapathum unctuosum, folio triangulo*, *C. B.* 115. *Lapathum unctuosum, sive Bonus Henricus*, *Park.* 1226. *Munt. Herb. Brit.* 207. ENGLISH MERCURY. *Dale.*

This Mercury has a thick, yellowish, perennial Root, with several Fibres ; the Leaves grow upon long Foot-stalks of a triangular Shape, like Spinage, of a yellow-green Colour, feeling greasy or unctuous in handling. The Stalks grow to be about a Foot high, with several of the like Leaves growing on them ; and on their Tops Spikes of small herbaceous Flowers, inclosing little, round, black, shining Seed. It grows in waste Places, and among Rubbish ; and flowers in Spring.

This Herb is of a deterfivè cleansing Quality. The young Shoots, before they come to Seed, boiled as Spinage or Asparagus, are pleasant to the Palate, cooling, soluble, and good for the Scurvy, and provoke Urine ; outwardly it is much used in Clysters, and a Cataplasm of the Leaves helps Pains of the Gout.

The only Official Preparation is the *Mel Mercuriale*, which is thus made :

Take of the Juice of Mercury, three Pounds ; of Honey, two Pounds : Let them be depurated, and boiled up together, to the Consistence of Honey.

This is seldom used, except in Clysters.

BOOPS, *Boax, Box*, βῶξ, βιάξ, βίωξ. The Name of a Fish that lives near the Shore. Its Flesh is reckon'd among Meats easy of Digestion, and is advised to sick Persons. It is described by *Aldrovandus, Lib.* 2. *de Pisc.*

BOOS *thalassiu*, βῶς θαλασσίος, from θάλασσα, the Sea, the Genitive of βῶς θαλασσίος, the Sea-cow. The Words are in *Galen's Exegesis on Hippocrates*, which he expounds by σελαγχώδης ἐστὶν ὁ ἰχθύς ὅτι, "this is a cartilaginous Fish." This Sort of Fishes *Pliny, Lib.* 9. *Cap.* 24. calls *plani*, and amongst them he reckons the Sea-cow ; and so does *Aristotle, Lib.* 5. *Hist. Anim. Cap.* 5. and *Lib.* 6. *Cap.* 12. who, as *Pliny* says, calls all those Kinds σελάχη, "cartilaginous," which are distinguished from others by having a Cartilage instead of a Spina, or Chine-bone of the Back. *Poësius.*

BORACO, *Capistrum Auri*, "the Bridle of Gold." *Rulandus.* See *Salmasius's* Remark on this Name under BORAX.

BORADES, Filings. *Rulandus.*

BORAGO, Offic. *Borrage*, *Park. Parad.* 249. *Chab.* 515. *Borrage hortensis*, or Garden Borage, *Ger.* 653. *Emac.* 797. *Raii Synop.* 3. 228. *Hist. Oxon.* 3. 437. *Borrage floribus cæruleis*, *J. B.* 3. 574. *Tourn. Inst.* 133. *Boerh. Ind. A.* 188. *Borrage floribus cæruleis & albis*, *Raii Hist.* 1. 493. *Buglossum latifolium, Borrage*, *C. B. Pin.* 256. BORRAGE. *Dale.*

The Root of Borage is thick, whitish, and but little branched ; from which spring several large, long, and roundish green Leaves, wrinkled, rough, and even prickly in handling. The Stalk likewise is rough and prickly, beset with smaller Leave, bearing many Flowers at the Top, which are of one single Leaf cut into five Segments, laid open like a Star, of a fine blue Colour, with a black Umbo in the Middle, each of which is succeeded by four brown angular Seeds, growing in a round Calyx. It grows in Gardens, but is found wild in divers Places near Houses, and upon Walls ; and flowers in June. The Leaves and Flowers are used.

The Leaves are accounted Cordial, good to comfort the Heart, and drive away Faintness and Melancholy ; and to that Purpose, the Tops are frequently put into Wine, and Cool-tankards. They are likewise Alexipharmac, and good in malignant Fevers.

The Flowers are one of the four Cordial Flowers. The only Official Preparation is the Conserve of the Flowers. *Miller's Bot. Off.*

BORAX. A kind of Salt used in mechanic Arts and Medicine. It is thus distinguish'd :

Borax, Chrysocolla factitia, santerna Plinii & Tincar, Offic. *Borax*, *Charlt. Foss.* 9. *Dougl. Ind.* 18. *Nitrum unde Borax coquitur*, *Aldrov. Mus. Metall.* 324. *Nitrum factitium, Arabice Borax*, *Worm.* 21. *Nitrum nativum aliorum fossilium modo in terra repertum durum, & spissum, ut Lapidi non abs re assimilari possit. Tincar est Arabum, ex quo Chrysocolla Græcorum, Borax eorundem Arabum, Venetiis conficitur*, *Calc. Mus.*

Mat. 162. *Nitrum nativum scissile durum, ex quo Venetiis Borax coquitur*, Kentm. *Baurach*, Mayern. Syntag. 1. BORACE. Dale.

The best Chryfocolla is what comes from *Armenia*, and is of a lively Leek-green. The next in Goodness is the *Macedonian*, and after this the *Cyprian*, of which Kind the pure is to be preferred; what has gathered Dirt and Stones is to be rejected.

The Manner of washing the Chryfocolla is thus: First, they break it, and then put it into a Mortar, where, pouring in Water, they rub the Chryfocolla well with their flat Hand against the Pestle; after this they let it alone to subside, and then strain it off. This done, they pour fresh Water to it, and work it as before, repeating the Operation till the Chryfocolla comes out pure and unmixed; then they dry it in the Sun, and so lay it up for Use.

When they have a Mind to burn it, they do it in the following manner: Having pounded a sufficient Quantity, they set it in a Pot upon the Coals, and proceed as has been directed in other Cases.

Chryfocolla exterges the Marks of Scars, and checks Excrescences; it is of a cleansing, astringent, and heating Quality; and is a gentle Septic, with some Degree of Mordacity. It is reckon'd among those things which excite Vomiting, and endanger Life. *Dioscorides*, Lib. 5. Cap. 104.

Chryfocolla is a liquid Substance, which runs through a Vein of Gold, and is condensed by the Cold of the Winter to the Hardness of a Pumice-stone. The best is found in the Copper Mines, and the next in Goodness in the Silver Mines; they meet with it also in the Lead Mines, and a baser Sort in the Gold Mines. They have also a way of making Chryfocolla artificially in all these Metals, though much inferior to what grows naturally, by introducing into the Vein a gentle Current of Water during all the Winter, till the Month of *June*, which, in that and the next Month, drying up, leaves behind it the Chryfocolla, which may be understood, from this manner of Production, to be no other than a putrid Vein. The native Chryfocolla is far different from this with respect to Hardness; they call it *Lutea*, though they dye it also with an Herb of that Name. It is of the Nature of Wool or Flax to imbibe any Juice. They pound it in a Mortar, then pass it through a fine Sieve; after this they grind it; and being thus reduced smaller, they pass it through the Sieve again; what will not go through is pounded over again in the Mortar, and afterwards ground in the Mill. The Powder is always disposed into small Vessels [*catinos*], and macerated in Vinegar, to take off all Hardness; then pounded over again; and afterwards washed in Pans, and so dried. After this they stain it with plumous Alum, and the Herb *Lutea* before-mentioned; and thus it is painted, before it paints. It matters much how bibulous and receptible it is; for if it does not immediately take the Colour, they add to it *Schytanum* and *Turbystum*, which are the Names of Drugs that dispose things to receive Colours. When the Painters have stain'd it, they call it *Orobitis*, and make two Sorts of it; the Yellow [*Lutea*], which is kept for a Paint; and the Liquid, resulting from a Dissolution of the Globules by Sweat; both these Kinds are made in *Cyprus*.

The most valuable Chryfocolla is the *Armenian*, next to that the *Macedonian*, but the largest comes from *Spain*. The utmost that can be said in its Commendation is, that it very nearly represents the Colour of a lively Corn-green. The Emperor *Nero*, in the Time of the public Shews, ordered the Area of the Circle to be strew'd with Chryfocolla, then enter'd himself, habited in the same Colour, and after introducing a Rabble of Mechanics, entertain'd them with his Dexterity in driving a Chariot. They make three Kinds of Chryfocolla; the rough, which is valued at seven Libræ; the middle Sort, valued at five Denarii; and the *Attrita*, called also the herbaceous, at thirteen Denarii.

The Use of Chryfocolla in Medicine is to cleanse Wounds, being mixed with Wax and Oil: As it is dry of itself, so it dries and contracts. It is prescribed also in the Quinsy and Orthopnea, being mixed with Honey. It provokes Vomiting, and is an Ingredient in Collyria for Cicatrices of the Eyes, and in green Plaisters for mitigating Pains, and inducing a Cicatrix. Physicians call the Chryfocolla, except the *Orobitis*, *Acefsis*. The Goldsmiths lay Claim to the Chryfocolla for soldering Gold, from which Use it takes its Name, [*χρυσός*, Gold, and *κόλλη*, Glue, Solder] and is so called by all who use it for the like Purpose. It is temper'd with *Cyprian* Verdegrise, and the Urine of a Boy, with an Addition of Nitre; they pound it with *Cyprian* Copper Pestles in *Cyprian* Mortars; we call it *Santerna*. This makes a Solder for that Gold which they call the *Silverish*, which is known by its acquiring a Brightness by an Addition of *Santerna*. But what they call the *Copperish*, on the contrary, contracts itself, and looks dull, and is difficult to be solder'd. For this Kind they make a Solder, consisting of Gold, and a seventh Part of Silver, added to the before-mentioned, and pounded together. *Pliny*, Lib. 33. Cap. 5.

Some Sorts of Chryfocolla are found among Metals, and these

only are by some accounted proper Chryfocolla. But there is a factitious Sort, which is prepared by pounding them with Boy's Urine in a Mortar of red Copper, with a Pestle of the same Metal, in the Heat of the burning Sun. This is more medicinal than the native Kinds, and makes an excellent Remedy for malignant Ulcers, either by itself, or mixed with proper Ingredients. Burning of it will diminish its pungent Quality. *P. Ægineta*, Lib. 7. Cap. 3. *Actius*, Tetr. 1. Serm. 2. Cap. 81.

Borax is a barbarous Word Latinized, and now every-where used instead of Chryfocolla. The later Greeks also call it *βοράχιον*, (*Borachion*) as *Myrepsus*, in the Ointment *διὰ κίτριον*, "of Citrons," Number forty-two, where one of the Ingredients is a Quantity *λίθου βοράχιν*, "of the Borachian Stone," where you see that Chryfocolla is called a Stone. But *Dioscorides* makes it a Property of the best Chryfocolla to be without Stones; and so the best Stone must not be at all stony, which is absurd. But I have often wonder'd how both Greeks and Latins of the later Ages came to use the Words *βοράχ* and *βοράχιον*, instead of Chryfocolla. They seem to have received them from none but the *Arabians*; and yet these are no *Arabic* Words. Therefore a great Man happens to be mistaken in his Notes upon *Garcias*, Cap. 35. Lib. 1. where he observes that *Borax* is a corrupt Word, and that we ought to say *Baurac*. This *Baurac* is indeed an *Arabic* Term, but never used for Chryfocolla, but for *Nitrum*, or *Aphronitrum*; it is *Avicenna's* Word for *Nitrum*, for he calls *Aphronitrum*, *Zebed Baurac*, that is, *Spumo Nitri*. The *Arabians* sometimes also use the Greek Word *Nitron*, but Chryfocolla they call *Tincar*. In a very ancient Copy of *Dioscorides*, *χρυσόκολλα* (Chryfocolla) is expounded, by the *Arabian Glosser*, *Tincar va Lezac Alzeheb*, "Tincar, or the Solder or Consolidation of Gold." In the latter Explication the Greek Word *χρυσόκολλα* is expressed, being no other than that by which Gold is solder'd. But *Zebed* is put for *Deheb*, for this is *Avicenna's* Word for Chryfocolla, as *Lezac Alzeheb*. This is the *Chaldaic* Name for Gold; for they also say *דָּהָב*, *Dahab*, instead of the *Hebrew* *זָהָב*, *Zahab*, Gold. *Brassavolus*, and others, observe, that Chryfocolla is called by the *Arabians* *Capistrum Auri*, "the Bridle of Gold." They were led into this Mistake by the old Interpreter, who on the Word *Tincar*, in *Avicenna*, has these Words, *et dicitur Capistrum Auri*, "and it is called the Bridle of Gold." In the *Arabic* it is, "the Consolidation or Soldering of Gold." *Avicenna* uses the Verb every-where as signifying to conglutinate and conjoin separate Parts, in the same Sense as the Greeks use *συγκολλᾶν* and *κολλᾶν* whence *κολλητικὰ φάρμακα*, "conglutinating Medicines." But the Letters of the Verb, with but one Apex more, signify *φραγναι*, "to bridle;" whence is deriv'd the verbal Noun, signifying *Frænum*, *Capistrum*, "a Bridle or Halter." This deceived the old Interpreter, who mistook it for the other; and indeed it would be absurd to call Chryfocolla, which is the Cause of the Cohesion and Conglutination of Gold to Gold, the Bridle of Gold.

The *Arabians* seem to acknowledge some Relation between the Chryfocolla and Nitre, that is, *Baurac*; for *Serapion*, in his Chapter of Chryfocolla, Cap. 413. writes, that the Tincar was a kind of Salt, and had some Taste of Nitre, that is, of *Baurac*. Also in his Chapter of Nitre, speaking according to the Opinion of *Rhasis*, he says, there is a kind of Nitrum, or Aphronitrum, whence is the Tincar, that is, the Chryfocolla. However it be, I do not in the least doubt, but from this *Arabic* Word *Baurac*, or *Borac*, which is Nitre, the *Barbarians* form'd their *Borax* to signify Chryfocolla. Thus from the *Arabian Sandarac* we know they made their *Sandarax*, and *βερνίκιον* (*Bernice*) they chang'd to *Pernix*, though to quite a different Sense from what the Greeks put upon their *Bernice*.

That the *Arabians* will have some Resemblance between the Chryfocolla, commonly called *Borax*, and Nitre, which they call *Baurac*, must perhaps be understood of that factitious kind of Chryfocolla, which is commonly made of plumous Alum and Sal Ammoniac; and therefore *Serapion* reckons the Chryfocolla among the kinds of Salt.

Borax, in *Albertus Magnus*, is also the Name of a Stone found in the Head of a Toad; but no Credit is to be given to that Author. *Salmasius de Homonym. Hyl. Intr. Cap. 121.*

Aristotle, in his Book *περί θαυμαστών ἀκτισμάτων*, speaks of *Demonfus*, an Island over-against *Chalcedon*, which produced Chryfocolla, the finest Sort of which was valued at its Weight in Gold, being a Remedy for the Eyes. *Idem*, *Plinianæ Exer-citationes*.

Mr. Geoffroy gives the following Account of Borax.

Borax is a Salt, whose Composition, whether natural or artificial, is but little known. Natural History, as well ancient as modern, affords us but little Light or Information concerning this strange Salt; and from what we can learn of it from thence, we are not sufficiently instructed to conclude, that it

is the true Chrysocolia of the Antients, though the *Spaniards*, who work in the Mines of *Chili*, the *Venetians*, and other Moderns, still give it that Name, which they found in ancient Natural History.

Pliny, speaking of the Chrysocolia of his Time, divides it into two Kinds; the native, which was taken out of the Mines of Copper; and the factitious, which was made by stirring and beating the Urine of young Children in Mortars of Copper. See above.

Paul Herman, in his *Materia Medica*, *Strasbourg* 1706. says, that they make Borax in the *East-Indies* of a nitrous Earth, which, after they have calcin'd, and reduced it to Powder, they boil and make thereof a strong Lixivium; this they afterwards expose to the Air, in order to make it run into Crystals; that this Salt never comes to a greater Perfection in that Country; and that it is in the Places whither it is transported that they purify it.

By these two Descriptions, and especially *Pliny's*, it appears, that we are at a Loss for the true Borax at present; for, in the Essays which I made on the Solution of this Salt in Water without Addition, I could never find a single Atom of Copper, whereas there ought to have been a considerable Quantity, had it been the Chrysocolia of *Pliny*.

Nor had I any more Reason, from what I could discover, to think that it might be made of a nitrous Earth, taken in the Sense, and according to the Properties of our Nitre at present, because it crystallized in a different manner, and fused upon Coal. But if *M. Herman*, by his *Indian Nitre*, means the Nitre of *Agra*, and some other Places in the *East-Indies*, which is a Natrum, and consequently a strong Alkali, Borax would be an alkaline Salt of much greater Penetration, and of a much more acrimonious Taste than we find it, unless they have a way in making this Salt, to add to the Natron some sweetening Substance to take off the Acrimony, and so make an imperfect Sal Salsum, in which the Alkali is predominant.

My late Brother, in the Lectures which he read at the Royal College upon the *Materia Medica*, and after the Perusal of some Memoirs of a German Traveller called *M. Narglin*, a good Naturalist, who had made many Essays upon that Salt, both in the *Indies*, and at *Venice*, where it was formerly purified, tells us, "That Borax was produced in several Parts of the *East-Indies*, but most plentifully in the Dominions of the Great Mogul, and in *Persia*; that, in several Places of those two Countries, there flow'd gently from different Mines, but principally from those of Copper, a salt Water, muddy and greenish, which was carefully preserved; that, after it was evaporated to a certain Consistence, they poured it into Pits sunk in the Earth, and lined with a Paste composed of the Mud deposited from the same mineral Sources, and the Fat of Animals; that they laid over these Pits a Cover of a convenient Thickness, made of the same Paste; that at the End of some Months they open'd them, where they would find the Water partly evaporated, and the Salt of the Borax crystallized; that they took these Crystals out of that fat Mud, with which they were still mix'd or cover'd, and in that Condition they were brought to us from the *Indies*."

Our Merchants import Borax also from *China*, where it costs little; which makes it probable, that this kind of Salt is natural to that Country, or at least very easy to make.

These different Boraxes are at present refined in *Holland*; but the way of doing it is not a Secret known only to the *Dutch*, for there is a private Gentleman in the *Pauzbourg St. Antoine*, who did refine it, and deliver it to the Merchants as fine and as pure as that of *Holland*. In this State of perfect Purification it is transparent like Rock-crystal.

While it is rough, or in the same State in which it was imported from the *Indies*, its Crystals are commonly of the Bigness of Hazel-nuts, of a greenish Colour, dirty, and obscure, like the Lare-stone of *China*, or of a palish Green like the Jade [a sort of precious Stone]. They are full of Impurities, and mix'd with Earth, and bedaub'd with a fat Substance, which is perhaps that of the Paste spoken of before, or some other Fat with which they were cover'd, in order to prevent their running into a Calx, or being reduced to a Powder during their Carriage in these hot Countries. For we know, that Borax is easily calcin'd in the Air, as soon as it has been washed in cold Water, and cleared of its unctuous Envelopement, which whitens the Water, and dissolves in it like Soap.

The Crystals of this Salt have the Figure of an oblique Prism, with six Faces, whose Base has six Sides, of which those opposite to each other are equal and parallel. The greatest Diameter or Length of the Base is almost double, and sometimes more than double its Breadth. What is singular in these Crystals is, that if we consider the two opposite Planes, which may reciprocally serve for a Base, we shall perceive a small Side of that Plane flatten'd throughout its whole Length; and sometimes also the acute adjacent Angle, and the two Sides, one in each Plane, thus flatten'd, are so situated, as to be diametrically opposite. Though this be not exactly true in all these Crystals, we may yet per-

ceive, that they for the most part resemble that Figure. The greatest Diameter of the Base of the largest that I could find was about ten or twelve Lines; and the least Diameter, or what measures the Thickness, five or six Lines. The Length is not always proportion'd to the Greatness of the Base; for one, the greatest Diameter of whose Base is but eight Lines, shall be thirteen or fourteen Lines in Height, whereas another, the greatest Diameter of whose Base is twelve Lines, shall have but ten Lines of Height.

There are some Crystals which come very short of that Size; and even some which are no bigger than Grains of Millet.

As it is very probable, that this Salt was form'd in a troubled or muddy Liquor; accordingly we find in dissolving it a great deal of gross Earth, or Sand; and its greenish Colour disappears, if it be crystallized anew.

This is all that I have to say concerning the external Form and Figure of Borax; as to its internal Nature and Properties, which has been the Object of the Inquiries of the most Part of the Chymists of *Europe*, I can speak no more than by Conjecture. *Becher* seems to have known the Composition of this Salt, if he did not speak at random in his *Physica Subterranea*, and his *Alphabetum Minerale*, where he says, "That the universal Acid, in dissolving a Stone, or fusible Earth, forms Borax; as it forms Alum, when it meets with an Earth fit to make Lime."

We shall, perhaps, one Day or other, discover Borax in Substances where we never suspected it could have been, as we have found *Glauber's* Salt, and vitriolated Tartar, in mineral Waters, Plants, and other natural compounded Bodies.

M. Homberg believ'd, that Borax was a mineral urinous Salt. *M. Lemery* the elder thought it had the Qualities of a neutral Salt, which neither fermented with Acids nor Alcalies; and, in the last Place, *M. Lemery* defin'd it to be a Sal Alkali, because it precipitates the metallic Earth of Vitriols, and the Earth of Alum, almost as readily as Salt of Tartar does it. He has shewn also, that Borax is sublimed not only with a vitriolic Acid, but with other mineral Acids, and with white Vitriol. *Memoires de l'Acad. Roy. des Scienc.* 1732.

The distinguishing Properties of Borax are principally these:

1. Its Form and Appearance, as brought to us from the *East-Indies*, which is that of dirty Lumps, or a coarse, saline, and particularly fetid Substance, mixed with much unctuous, earthy, and stony Matter; and in this State it is commonly called Tincal, or Tincar.
2. Its pure and entire Crystals, when refined, being octagonal Prisms very finely cut, though seldom obtained perfect in the ordinary way of refining it.
3. Its particular Taste, not easy to be described, as being sweetish, sharpish, and somewhat urinous or lixivious.
4. Its Property of soldering Metals, or making them easily unite, or take hold of each other, more particularly the Parts of Gold.
5. Its making an excellent Flux for Metals and certain Ores, and, by being melted with a proper Proportion of Sand or Flint, turning, in a very short time, to a hard Glass, capable of cutting common Glass almost like a Diamond.
6. Its extremely vitrescible Nature, so as by itself, with a moderate Heat, and in a few Minutes time, to become true and permanent Glass.

The Use of Borax in Medicine is that of an incisive and aperient Salt, by virtue of which it is effectual against Diseases which proceed from an Inspissation of the Humours, and Obstructions thence arising, acting at the same time against the Acid, without exciting any Motion. The Dose is an entire Dram. It is thought by some to have a specific, emmenagogical, and expulsive Virtue, which may probably be derived from the aforesaid incisive, deobstruent, and aperitive Qualities. However, its Stimulus does not seem strong enough to be depended upon for present Relief in a difficult Birth, unless it be join'd with some other Ingredients, that are of more Efficacy by their volatile Stimulus. For this Reason Borax is commonly given in Powder mixed with Saffron, Myrrh, Oil of Cinnamon, Castor, the volatile Salt of Amber, and other Powders of known Efficacy, in promoting the Birth, and facilitating Delivery. Some advise a few Grains of it to be taken in a poach'd Egg, as a Provocative to Venery, especially to those whom poach'd Eggs alone have a good Effect upon.

Borax calcin'd is reckon'd of specific Virtue in Fluxes of the Belly, or the Semen, because it is a sort of styptic Earth. The Dose is from a Scruple to half a Dram, in Conserve of Roses, either alone, or with other suitable Ingredients, for Instance, the Bone of the Cuttlefish, or toasted Nutmeg.

Outwardly it is apply'd, though but seldom, to consume carnos and spongy Excrecences in fordid Ulcers; it is recommended also for the Itch, and in Cosmetics. The Usefulness of Borax in such Cases may reasonably be expected from its saline, incisive, and resolving Qualities, which cause it to be received into the Unguentum Citreum, which is recommended for making

B O R

making the Skin smooth, and free from Asperities. Its saponaceous, absterfive Virtue, for the Purposes aforesaid, may perhaps more justly be expected from Borax in its crude State, as it is sold in *India*; tho', according to *Garcias*, it is seldom used by the *Indian* Physicians, unless for the Itch. The *Pulvis Diaboracis Mynsichti* has Borax for its Basis, and stimulating Aromatics and Absorbents for Accessories. The Dose is to a Dram for Women in Labour, to facilitate the Birth, and to expel the Secundines, and dead Foetus.

As Examples of the Methods of prescribing Borax, I shall give the *Pulvis Emmenagogus* of *Fuller*, and the *Pulvis Diaboracis* of *Mynsicht*.

PULVIS EMMENAGOGUS, Fulleri.

Take of *Venetian* Borax, fifteen Grains; Myrrh, twelve Grains; Saffron, three Grains; Oil of Cloves, one Drop: Mix together, and make a Powder.

This is to be taken twice a Day, and is recommended for promoting the Menfes.

PULVIS DIABORACIS, Mynsichti.

Take of *Venetian* Borax, an Ounce and a half; Cassia Ligna, and Oriental Saffron, each three Drams; Savin-wood, white Amber prepared, each a Dram and a half; Bone of a Stag's Heart; Mistleto, Flowers of the Wall-flower, each a Dram: Mix, and make a Powder. The Cassia Ligna, Savin-wood, Mistleto, the Bone of a Stag's Heart, the Saffron, and Flowers dried, are to be powder'd together; and so are the Amber and Borax; and then all are to be mix'd together.

It is recommended for promoting Delivery, and expelling the After-birth; and is said to be a good Emmenagogue.

BORBONICUS, *Borbonensis*. A patronymic Epithet of some hot Springs, commonly call'd the Waters of *Bourbon*. *Castellus*.

BORBORODES, *βορβορώδες*, muddy, dirty, earthy, feculent. *Βορβορώδες πύον*, is dirty, feculent Pus, *Hip. Prognostic. and Aph. 44. Lib. 7. and Coac. Βορβορώδες ούραι* are "muddy, earthy Smells," *Lib. πειλ χυμῶν. Βορβορώδες ούρα* are "muddy, feculent Urines." *Galen. Comment. ad Aph. 69. Lib. 4.*

BORBORYGMUS, *βορβορυγμός*. A rumbling Noise, excited by Wind, mix'd with some Degree of Humidity. *Galen*, in his Comment on the seventy-third Aphorism of *Book 4.* says that *Borborygmus* is the Noise of a Flatus, not very loud, nor long, with a moderate Degree of Humidity, descending to the inferior Parts. And, *Lib. 3. Symptom. Caus. Cap. 7.* "a *Borborygmus* is a murmuring Sound, excited by Humidities contain'd in the Intestines, and is the Fore-runner of a humid Excretion: So Tumors about the Præcordia terminate in a *Borborygmus*, or Rumbling; the Flatulencies, together with the Excrements and Urine, discharging themselves principally by Stool; for such is not barely a Sign of a Flatus, but that it is mix'd with some Humour, or more solid Body." *Βορβορυγμός γενόμενος ἐν ὑποχορδαίῳ* "A Rumbling in the Hypochondria," *Coac. Βορβορίζειν*, and *διαβορβορίζειν*, are spoken of the κοιλίῳ, "Belly," when it rumbles, and is irritated to Excretion, *Lib. de Rat. Vict. in Morb. acut. Διαβορβορίζουσα κοιλίῳ κατὰς θανάτωσης* "The Belly rumbling, with vain Efforts to ease itself," *Prorrh. Διαβορβορίζουσα ὑποχονδρία μέλειται* "The Hypochondria rumbling, and elevated," *Aph. 73. Lib. 4. ὁ βορβορίζων* is also used, as, *κοιλίῳ ὑποβορβορίζουσα φύσιν*, "the Belly rumbling with Flatulencies," *Arctæus, Lib. 2. Cap. 6. de Causis & Signis acut. Morb. Ὅτι ἐν ποσίσιν ὑποβορβορίζοντες* "Who have a Rumbling in them when they drink," *Coac.* This sort of Noise is like what is produced by treading in Mire, *βέβροτος*, whence it takes its Name.

BOREAS, *Boreales Venti*. The Northern Winds are of a cold Temperament, and therefore the most wholesome of all Winds, especially to Bodies of a hot Complexion, and well cloathed with Flesh. *Actius, Tetrab. 1. Serm. 3. Cap. 163.*

It is observed, that the North and East Winds bring with them the universal Acid of the Air in great Abundance: Hence they might reasonably be expected to be cold, *a priori*, as we in Effect find they are. In consequence of this Cold, all Tendency to an alkaline Putrefaction, and a Dissolution of the Blood, is destroy'd; that is, all Contagion, in some Degree at least; which the South Winds, as productive of Heat, increase and promote.

Hence we may readily determine, what sorts of Diseases the North Wind is likely, in general, to produce; which are such as depend upon an increased Rigidity of the Fibres, and a Viscidity of the Juices, the Consequences of Cold. And, in Fact, we find in these Northern Climates, most Fevers, those which happen during Winter more especially, are accompanied with a Sickness of the Blood; whereas very hot Countries are more

B O S

subject to Fevers attended with a Dissolution of the Juices, that is, pestilential Disorders.

BORIDIA. A sort of salt Meat, prepared of a kind of small Fish, and eaten raw. This, with other Pickles of the like Kind, are hurtful to the Stomach, hard of Digestion, and loosen the Belly. *Oribasius* from *Xenocrates, Med. Coll. Lib. 2. Cap. 58. ad finem.*

BORITIS. The Philosopher's Stone, which melts the Copper of the wise Men, and renders it fluid like Water.

BORIZA. The same as *LUNARIA*, which see.

BOROMETZ. See *AGNUS SCYTHICUS*. See *AGNUS*.

BOROS, *βορός*. Voracious, edacious. Hence *ἰσως βορὸν*, voracious Water, that is, Water which excites a good Appetite, *Aph. 18. Lib. 6. Epid. Sect. 4. Galen* says, "All the Greeks, in our Part of *Asia*, still call great Eaters by the common Name of *Bori*." *Βορὴ*, in the *Ionic* Dialect, for *βορὰ*, signifies Food, *Lib. 1. πειλ γυναικ. Βορὴ*, in *Hesychius*, is expounded by *βρώσις, σίτησις, τροφή*, "Meat, Food, Aliment."

Castellus, by an egregious Blunder, calls this *Borrhus*, *βορρος*.

BOROZAIL, or the *Zail* of the *Ethiopians*. A Disease epidemic in the Countries about the River *Senega*. It principally infects the Pudenda, but is different from the *Lues Venerea*. This owes its Rise to immoderate Venery, to which they are very subject. This Distemper, in the Men, is call'd *Afub*; in the Women, *Affabatus*. *Blancard.*

BORSELLA. An Instrument belonging to the Glassmakers, by which they contract or extend their Glass Vessels, as they see Occasion. *Castellus.*

BOS, *Offic. Schrod. 5. 269. Schw. Quad. 63. Aldrov. de Quad. Bifal. 13. Gefin. de Quad. 25. Bos domesticus, Jonf. de Quad. 26. Charlt. Exer. 8. Raii Synop. A. 70. Mas Taurus. THE BULL. Dale.*

But *Bos* properly signifies a Cow, Bullock, Heifer, or any thing of the Neat Kind.

Black Cattle, or Kine, as well as other Animals which feed on high Grass and Herbs, during Winter, and the Beginning of Spring, are lean, and of bad Juice; but as the Summer comes forward, and the Grass grows, they visibly increase in Flesh, and become of better Juice. But Animals which can eat tender Herbs, and short Grass, are best in the Beginning and Middle of Spring: Such are Sheep. The Beginning and Middle of Summer agree best with Goats, and their Flesh is most wholesome when they can browse on the tender Shoots of all manner of Shrubs.

Beef affords a good deal of Nourishment, and what is not easily dissipated, but generates too thick a Blood. And if a Person be naturally of a melancholy Temperament, a plentiful feeding on Beef will bring upon him some melancholy Disorder. As much as Beef surpasses Swines Flesh in Solidity, so much does this latter exceed the other in Sliminess of Substance, and yet is much easier of Concoction. *Oribasius, Med. Coll. Lib. 2. Cap. 28.*

In a Resolution of the Stomach, by which it becomes incapable of retaining the Food, Meats of a cold Quality, and such as are difficult of Concoction, rather than easy to be corrupted, are to be prefer'd; for which Reason many Persons digest Beef, who can digest nothing else. *Celsus, Lib. 4. Cap. 5.*

The same Author advises Eating of a Bullock's Spleen, to those who labour under a Hardness and Swelling of that Part, *Lib. 4. Cap. 9.*

The Marrow of young Bullocks is reckon'd, by *Oribasius*, next in Goodness to that of Stags; that of Bulls and Goats, he says, is more drying and acrimonious, and therefore not so fit as the others for dissolving a scirrhus Tumor or Hardness. *De Virtut. Simpl. Lib. 2. Cap. 1.*

The Fat of Beef is reckon'd among Sudorifics, by the same Author from *Zopyrus, Med. Coll. Lib. 14. Cap. 56.*

The Dung of Bullocks, like their Food, has but little Variation: It is of a drying Quality, and is also an Attractive. A Physician, of no mean Skill in his Profession, used to cover up his Hydropical Patients with Cow-dung, and then expose them to the Sun, and by that means did much Good. He chose the Dung in the Spring-time, when it was moist, and the Cows were at Grass: This he dried, and laid aside for Use. He applied the same, by way of Cataplasim, to strumous and all other hard Swellings. *Actius, Tetrab. 1. Serm. 2. Cap. 115.*

With respect to the Ox-kind as an Aliment, it must be consider'd, that Animals of this Species live on Grass and Water only; and that their habitual Exercise is very little, most of their Time being employ'd in Eating, Sleeping, and chewing the Cud; unless when they are imprudently put upon hard Labour, as is the Custom in some Countries. Hence their Flesh is not render'd too hard by their habitual Exercise; nor are their Salts highly exalted either by their Food or Motion. It must therefore be a very good Aliment, under proper Management, when taken in due Quantities, and in proportion to the Exercise used by the Person who eats it.

But the *English* generally take care to abuse the Gifts of Providence, in regard to this salutary Food; and with much Pains contrive

contrive to convert Beef, of itself a very nourishing and strengthening Aliment, into a Poison, rendering it hard, and, in Consequence of that, indigestible, by laying it in Salt for many Days before they dress it; not to mention, that it is even then frequently swallow'd half raw. The digestive Organs, therefore, not being able to dissolve this indurated Aliment, and convert it into good Chyle, many Particles, too large to circulate thro' the minute Vessels of the Body, must stagnate in different Parts, and particularly in the Glands. Hence that Distemper which we call the Scurvy, the Source of innumerable Disorders, both acute and chronical; to which Sailors, on account of their salt Diet, are particularly subj-ct.

It is owing to this Error, more than to our Climate, that the *English* are remarkable for being melancholy and dejected, especially in a rainy or cloudy Day, when the Atmosphere is light, and the Elasticity of the Air diminish'd; for on these Occasions it is, that they appear gloomy and unsociable, and are much inclined to find out a retired Place, where they may, without Disturbance, put an End to their Lives: A Custom too frequent amongst us, and which is peculiar to our own Country; for Self-murder is scarcely ever heard of abroad.

The *French*, with respect to their manner of Diet, are more prudent than we. They boil their Beef well, unsalted, and make of it large Quantities of Soup and Bouillies; adding to them a large Quantity of Vegetables, and Salt as they like it; by which they avoid the Inconveniencies and Disorders we voluntarily run into. Hence they are perpetually gay, and full of Spirits; and hence the Scurvy, and its Consequences, are known in *France* to none but the Sailors.

Beef, according to *Hippocrates, de Dieta, Lib. 2.* is a strong Food, and binds the Belly, and is of difficult Concoction, because the Animal abounds with thick Blood, and its Flesh is heavy. In another Place, which is his *Book de Rat. Vict.* he says, that arrabillous Affections are exasperated by eating of Beef; for its Nature is insuperable, and it is not to be digested by every Stomach; but it is best qualified for Concoction and Distribution when thoroughly boil'd, after it has been hung up for a good while.

Simon Sethi, giving us the Opinion of the Antients, writes, that Beef affords very firm Nourishment, and that the Blood generated of it is immoderately thick; for which Reason, in melancholy Constitutions, it causes various Diseases of the same Kind. It is also very heavy of Digestion and Distribution; but, if well concocted, is abundantly nutritive. If compared with Mutton, it is of a cold Nature, and generates melancholy Blood; but Broth made of it stops a Flux of the Belly proceeding from yellow Bile. If any one desires, or is compell'd, to feed on it, let him, if he be apprehensive of any Harm from it, eat it corrected with Vinegar, Garlick, and Rue; but it only proves of bad Juice in the before-mention'd Cases, and is a Remedy for a hot Stomach, and to those who use much and continual Exercise.

From the Premises we learn, that Beef is better for strong than weak Persons; for those who use Exercise, than the Sedentary; for those who are in the Vigour of their Age, than for Children or aged Persons; and in the cold Seasons of the Year, than in the hot. We see the Reason also, why Beef is call'd the Food of Heroes in *Nomus*; and why its Broth is good to stop a Looseness, that is, when the Disease requires a Remedy of a glutinous Nature, that tempers Acrimony, and is a Vulnerary; and lastly, why it is hurtful to those who are of a melancholy Habit of Body, if they feed too freely on it. If it be eaten, then, by those who use much Exercise, and with Moderation, it will verify what *Gelsus* says of it, *Lib. 2. Cap. 24.* which is, that it is good for the Stomach.

The Flesh of Bulls is inferior to that of Oxen in Wholesomeness; unless the Ox has been much inur'd to Labour, and his Flesh by that means render'd dry and hard. The Flesh of Oxen is also prefer'd to that of Cows.

The Smell of the Hide, but especially old Leather made of it, burnt or singed, is commended for the Hysteric Passion. The Tallow is of Service, where-ever Emollients are required. The Axungia, which is melted from the Hoofs, is more penetrating and emollient, because of finer Parts; but the Marrow exerts its emollient Virtue where-ever it is applied. That the Bones, calcin'd and pulveriz'd, are said to strengthen the Bowels, to stop a Looseness, and to be effectual against Worms and the Epilepsy, used either internally, or in Ointments or Plaisters, must be understood of such Cases where the Disorder proceeds from an Excess of Humidity, or an Acid, and is to be subdued by Driers and Absorbents. Some commend the Scrapings of a Bull's Horn, taken at the Time of his Coition, for the Epilepsy and Impotence; but, supposing it easy to be obtain'd at such a Juncture, it can no otherwise be effectual to these Purposes than as an Anti-acid, which acts by its volatile alkaline Salt. The Horns are also commended as proper for Suffumigation in pestilential Times; but I much question whether the inspiss'd Fume, being of an alkaline Nature, would not more dispose the Humours to Putrefaction. The Hoofs have an antepileptic Virtue, with the Limitations aforesaid: Being

fried, and so taken, they may be of some Service in a Dysentery, where an alkaline, anti-acid, glutinous Faculty is requir'd. The Talus of a Cow pulveriz'd, and drank in Wine, is commended by *Forestus*, as a Specific against Worms in the Intestines. The *Membrum genitale*, or Pizzle of a Bull, pulveriz'd, or else a Decoction of the same, is reported to create a Desire of Coition in Men, but an Abhorrence of the same in Women; but Reason does not comprehend these Contrarieties, nor Experience attest them. There is a Stone sometimes found in the Gall-bladder of this Animal, which is call'd *Bezoar Bovinus*, and *Acheron Lapis*, by the *Portuguese Mesang de Vaca*, and by the *Arabians Haraczi*, which is said by some to have an alexipharmac and antepileptic Virtue. But this Stone is not to be confounded with the *Bulithum*, or Ball, which is sometimes found in the Stomach, and sometimes in the Intestines of this Animal. These are usually call'd also *Tophi Bovini*, and consist of Hairs, which it gets off, by Licking, from its Body, and swallows; where by degrees they concrete into a Ball, which is commonly of the Colour of the Animal's Hair. Sir *Hans Sloane*, in his History of *Jamaica*, says, that some give half a Dram of it in Powder as an Astringent. These Balls have sometimes a shining Crust over them, in which respect they imitate the true Bezoar-stone. The Gall is fully treated on under the Article *BILLS*. The Spleen is not only commended in Decoctions, but for external Uses, in Affections of the Spleen, as Hardness, Inflammation, Pain, and Tumor. *Paracelsus*, as *Etmuller* writes, has a remarkable Experiment of the Virtue of this Part, which he chopp'd into small Bits, and boil'd in Water, for a Suppression of the Menfes, and a Cachexy proceeding from it. Reason does not comprehend this, but must yield to Experience. *Etmuller* goes on to tell us, that the Essence prepar'd with Spirit of Baum is commended in Obstructions of the Menfes, and a Cachexy thence proceeding. It may also conveniently be mix'd with liquid Essence of Steel, that it may be more appropriated to such Cases, and more especially to the internal Parts, and principally to the Opening of the Obstructions and Oppilations of the Mesentery. *D. Michaeli* had some compound Essence of Ox's Spleen mix'd with Essence of Steel, which he used in a Suppression of the Menfes, attended with Pain. Some commend it to provoke an Appetite. The Spleen of an Ox, distil'd with Spirit of Wine, is recommended for all Infirmities of the Stomach. Thus far *Etmuller*; but the Virtue of this distil'd Liquor, I should think, were owing to the Spirit of Wine, and that of the Essence to the other Ingredient, rather than to any thing proceeding from the Spleen of the Ox. In the *Berlin Dispensatory* there is a Medicine intitled, *Essentia Splenis Bovini*, which is extracted from the Spleen of a young Bull castrated, by means of Spirit of Wine, or of Baum, after it has been cut into thin Slices, and macerated for some Days in Spirit of Wine, saturated with Myrrh, or the Powder of Angelica, and then dried in the open Air.

The Liver of an Ox, dried and pulveriz'd, is commended as good in Fluxes of the Belly, and Hemorrhages. If it be serviceable in this Case, it acts as an absorbing, alkaline Powder; but then the Liver of other Animals will have the same Effect. It is said to be conducive in curing Infirmities of the Liver, if a Decoction be made of it, and other hepatic Plants; but I attribute such Effects to those Plants alone.

The Dung of an Ox is deservedly commended for its discutive Virtue in external Applications. Hence it is used recent, by way of Cataplasin, in Inflammations, particularly the Gout, as an approved Anodyne. Some mix with it Earth-worms, and apply it to the Abdomen, in order to cure the Colic, and discuss Flatulencies; as also in the Ascites, to repress the Tumor, and discuss the Water; for, next to human Dung, that of an Ox is reckon'd the best for this Purpose. *Etmuller* says it is very effectually applied to oedematous Tumors: It is also commended against a Suppression of Urine, if applied to the Pecten, and the Region of the Pubes. The common People give the express'd Juice in Pains of the Colic; and *Etmuller* asserts, from certain Experience, that it is not only a present Remedy in the Colic, but also in the Pleurisy; that of this Dung, in the same manner as of human Dung, by repeated Digestion and Sublimation, may be prepar'd the *Zibethum Oxidentale*, so call'd by *Paracelsus*, because it exhales a sweet Smell like Civet. *Dioscorides, Lib. 2. Cap. 73.* says, that the Dung of an Ox that grazes, applied recent, mitigates the Inflammation of Wounds. It is wrapp'd, he says, in Leaves, and heated in hot Ashes, and then applied to the Place; that a Fomentation of it allwages the Pain of the Sciatica; that it discusses Hardnesses, Pain, and Strumæ, being anointed with it, infused in Vinegar; and that a Suffumigation of the Dung of the Male of this Species represses the Falling-down of the Uterus; and that the Smell of it, when kindled, drives away Gnats. On these Passages, *Matthiolus* remarks: "We are to consider, " that all Medicines of this Kind are accommodated to the hard " Bodies of Rustics, such as Diggers, Mowers, and such as " are inur'd to Work which requires bodily Strength; to " such as these, when affected with scirrhus Tumors, it is ap- " plied by way of Cataplasin, with Vinegar." *Valerius de Tarranta*

ranta assures us, that the Dung of an Ox (or a Horse) is of excellent Use in a Gangrene, to preserve the sound Parts from Corruption: And, after him, *Sylvius* and *Barbette*, as they say, made use of the same Remedy, which they kept as a great Secret. But it is really a sordid Medicine, hardly worthy of a Physician, and to be left to the poor Commonalty, rather than to be recommended to the Rich and Noble, according to *Heister*, *Chir. p. 323*.

Cow's Urine, internally used, *Etmuller* says, cures the Gout, if it be taken in the Month of *May*, and the Feet are bathed a while in it, and, after that, the *Norimberg* Plaister is applied to them. *Dioscorides* says, that a Bull's Urine, with Myrrh, infus'd into the Ears, eases Pains thereof. *Helmont* proposes, as an approved Remedy for the Stone, the Liquor that usually fills the Bladder of the Fœtus in a Cow, drank every Morning, to the Quantity of about two Ounces, in a like Proportion of White-wine.

The Blood of a Bull, fresh-drawn, is reckon'd poisonous, by causing a Difficulty of Breathing, and Suffocation; but *Matthiæus* on *Dioscorides* observes, that, except it be drank in great Quantities, and hot as it comes from the Veins, before it concretes, it does little or no Harm. This poisonous Quality is not, however, confirm'd by later Experiments. But the Blood of Oxen and Bulls is commended, as internally used, for the Dysentery, an Excess of the Menses, and other internal Hemorrhages; and, for Spitting of Blood, it is prescribed to be taken in Vinegar. Externally it is effectual in dissolving and mollifying Tumors, and clearing the Face of Spots and Blemishes. *Etmuller* says, the Blood is hardly used, but in case of an Atrophy of the Limbs and Joints, after great Wounds receiv'd; and for Weakness and Pains in the Members and Joints, which, being thrust into the fresh Blood of an Ox, or a Dog newly kill'd, will be wonderfully refresh'd thereby, and render'd more pliable, and fit for Motion. The Blood of an Ox then, externally applied, has these Virtues in common with the Blood of other Animals; which Virtues are derived from its saponaceous Nature, whereby it is a Dissolvent and Aperient, its native Heat promoting its Operation. Internally taken, it is hurtful, by its natural Property, which causes it to concrete in the Stomach, and renders it insuperable by the vital Powers. *Helmont* says, that the Blood of a Bull is Poison, but not that of an Ox or Cow; and assigns as a Cause the Fury of the Bull, dying with an eager Desire of Revenge, which impresses a Mark of Vengeance, and a powerful Signature, on the Blood. *Guainerius* says, that not only the Blood of a Bull, but that of an old Ox, is poisonous. *Kiegar*.

BOSA. An *Egyptian* Word for a Mass, prepar'd of the Meal of Darnel, Hempseed, and Water, of the same inebriating Virtue as the Assis, which see.

BOSCADES, *βοσκάδες*. An Epithet for Pigeons which build in Towers, which some use to erect in the Fields. They are otherwise call'd *Agrestes*, wild, to distinguish them from the Domestic, *ἡ καὶ οἰκιστὴν*. *Galen, Lib. 2. de C. M. S. G. Cap. 10.* *βοσκάς* is also a kind of dry Pitch, of a tenacious Quality, like Bird-lime. *Gorræus*.

BOSCI SALVIA. A kind of Sage which takes its Name from *Boscum*, or *Boscus*, a Wood, the Places where it grows. *Blancard*.

BOSMOROS, or BOSPOROS, from *βοσκαω*, to feed, and *μέρος*, a Portion or Division. A kind of Corn so call'd, because it is divided by the Teeth of the Mill, or by the Stone; or because it is separated from the Chaff by the Treading of the Oxen, it may derive its Name from *βῶς*, *Dorice*, *βῶς*, an Ox; or, again, from *βῶς* and *πείνω*, to pass over. *Blancard*.

BOTANUM. Wash'd Lead. *Rulandus*.

BOTANE, *βοτάνη*. An Herb; whence is derived

BOTANY. The Science relating to Herbs and Plants, for which the Antients have no Name, as it was not in their Days erected into a regular Science.

Before I proceed to the History of Botany, it will be convenient to give an Explication of the Botanical Terms commonly us'd, which will save the Reader the Trouble of turning to a Multitude of Articles, in order to understand what will afterwards be said.

A

ACAULIS & ACAULOS, without a Stalk; that is, when the Flower of a Plant grows close to the Ground, having no visible Stalk, as in the Carline-thistle.

ACINUS & ACINI, are the Berries or Fruit of the Elder, Privet, Ivy, &c.

AGARICUS. See this Word in the Letter A.

ALA is the Sinus of a Stalk, which the Leaf or Pedicle makes with the Stalk or Branches, from whence a new Offspring uses to put forth.

ALCYONIUM. See this Word in the Letter A.

ALGA. The *Alga* is a Species of Plant that grows in Water, with fine oblong grassy Leaves, and more perfect Seed than that of the Fucus; for its Vessels, when come to Maturity, gape, and let fall the Seed, as it happens in more perfect Plants.

AMRNTACEOUS FLOWERS are such as have an Aggregate of Summits hanging down in form of a Rope or Cat's Tail; as Vol. I.

the Male-Flowers of the Mulberry, the Hasel, Walnut, and Oak. These are also call'd *Iuli*, and, in *English*, *Katkins*.

APETALOUS FLOWERS. See FLOS.

APICES, *Συμμίτις*, are those Bodies which hang upon the Chives; or Threads, which generally surround the Pointals of Flowers, and contain the prolific Powder, which is analogous to the Male Sperm in Animals.

ARBOR, a Tree, is defin'd to be a woody Plant of the largest Growth, whose Trunk is perennial and single, and divided into many large Branches, which are again divided into smaller Twigs, on which the Leaves, Flowers, and Fruits, are produc'd.

ARISTA is that sharp-pointed Needle which stands out from the Husk or Covering of the Grain of Corn or Grass, and is call'd *Awn*, or *Beard*.

ARTICULATION is the Connexion of Parts that consist of Joints or Knees, such as the Pods of Birdsfoot, or *French* Honeysuckle, which, when ripe, divide into so many Parts as there are Knees or Joints.

AXIS is a taper Column placed in the Centre of some Flowers or Katkins, about which the other Parts are dispos'd.

B

BACCA, a Berry, a roundish Fruit, for the most part soft, containing one or more Seeds in a pulpy Substance.

BALAUSTIUM is the Cup of the Flower of the wild Pomegranate.

BARBULÆ are the Half-florets of compound Flowers.

BIVALVE: The Pods or Husks of Plants, which open lengthways in two Parts, like the Shell of a Muscle, are term'd *Bivalve*.

BRACHIA are the Division of the large Branches of Trees from the Trunk.

BRYUM. The *Bryum*, or *Bryon*, is a fertile kind of Moss, which differs from the *Polytrichum* by its smooth Calyptra, and from the *Hypnum* principally with respect to the Original of its Pedicles, which proceed from the Tops of the Stalks and Branches, or from the Radicles and annual Shoots, which, the former Year, were the Tops of the Stalks, and have not their lower Part inclosed in a squamous Sheath, like those of the *Hypnum*. Add to these Characters, that its Stalks are, for the most part, erect, and less branch'd than those of the *Hypnum*, and not trailing and creeping. The Calyptræ are situated sometimes perpendicularly, sometimes obliquely in the Head, and the Seed-vessels, usually part transversely, sometimes with an even, sometimes with an indented Margin.

BULBUS. Bulbous Roots are such as consist either of several Coats involving one another, or of several Scales lying one over another. The first of these is call'd a tunicated Root, (of this Sort is the Onion and Tulip) and the last is call'd a squamous (that is, a scaly) Root; of which sort is the Lily and Martagon.

BYSSUS. The *Byffus* is the lowest, and a barren kind of Moss, consisting of a very thin, and, to the naked Eye, imperceptible sort of Wool, which is produc'd from various Substances, appearing sometimes like a very fine Powder, sometimes like Down, and frequently lasts for a considerable time, in which respect it differs from the *Fungus*, as it does also in having no Head, or any other Resemblance to the rest of the *Fungi*.

C

CALYPTRA is the thin Involucrum or Cover of some Seeds.

CALYPTRA, a thin Cup, which covers the Heads of some of the Mosses.

CALYX, or Empalement, is generally understood to mean those less tender Leaves, which cover the other Parts of the Flower.

CAPILLAMENTS in Flowers are generally understood to mean the Chives which support the *Apices*.

CAPITELLUM, the Head or Seed-vessels, frequently applied to Mosses.

CAPITULUM is the Head or Top of any Plant.

CAPSULA is the short Pod or Husk of a Plant, containing the Seed.

CARINA is the concave Petal or Segment of a Butterfly-flower, which resembles the Keel or lower Part of a Boat.

CAUDA, the Tail of a Leaf, is a Production of the middle Rib, and connects the Leaf with the Stalk, after the manner of a Pedicle; when the middle Rib has an Appendix of the Leaf running along it, it is often call'd a wing'd Leaf.

CAUDEX is the Trunk of a Tree.

CAULIS is a Part of a Plant receiving the Nourishment from the Root, and conveying it into the other Parts with which it is cloath'd, not having one Side distinguishable from the other. The Stalk of a Tree is call'd the Trunk, and in Corn and Grass it is call'd the Blade.

CAULIS PROCUMBENS, a procumbent or trailing Stalk, is that which lies on the Ground without emitting Roots.

CAULIS REPENS, a creeping Stalk, is that which lies on the Ground, and propagates itself by emitting Roots, as the Ivy and Strawberry.

CAULIS SCANDENS, a climbing Stalk, is that which climbs by the Help of Tendrils, as the Vine and Briony.

CAULIS VOLUBILIS, a twining Stalk, is that which twists about any Prop without the Help of Tendrils, as the Hop, Kidney-bean, &c.

CIRRI are the little Fibres of the Roots of Plants.

CLAVICULUS, or *Capreolus*, (that is, Tendrils) is a Part of a Stalk, curling and laying hold on any adjacent Body, and is always produc'd at a Joint. These are also call'd *Claspers*.

COMA is the Top of a Branch or Flower.

CONFERVA. The *Conserva* is a barren kind of Moss, destitute of little flowery Heads, and even of those Bolls and Tubercles, which some other Kinds are furnish'd with instead of them, and consisting only of round, smooth, and uniform Leaves, or rather little Stalks, divided into fine Capillaments.

CONUS, a Cone, is the Fruit of the Pine, Fir, and Cedar.

CORYMBUS signifies a Cluster of Flowers or Fruit standing on Pedicles, which are disposed in such a manner as to form a Sphere; of this sort is the Ivy.

CRENA, or crenated Leaves, are such as are cut about the Edges into several obtuse Segments.

CUBITUS, a Cubit, that is, a Foot and a half; so the Stalks of Plants are term'd *Cubitalis*, *Bicubitalis*, &c. according to their Height.

CULMUS is the Stalk or Blade of Corn.

CYLINDRUS, that is, Cylinder; the Fruit of Plants are term'd Cylindrical, when they resemble a Column.

CYTINUS is generally understood to mean the Flowers of the true Pomegranate; but, by some Writers, the Cups of Flowers, which expand after the same manner, are term'd *Cytiniformes*.

D

DENTICULATUS, that is, indented; those Leaves of Plants which are cut about the Edges into several Segments, more acute than the crenated Leaves, are term'd denticulated.

DIGITATED LEAVES are compound Leaves divided into several Parts, all of which meet together at the Tail, in form of a Hand.

DISCUS, the Disk, is an Aggregate of Florets, forming, as it were, a plain Surface.

DISSEPIMENTUM is the thin Septum which divides the several Cells in the Fruit of Plants.

E

ECHINUS; those Plants, or Parts of Plants, which are beset very closely with Spines, like a Hedgehog, are term'd echinated.

EMARGINATUS; those Leaves of Plants which are hollow'd at their Extremities, so as to form a Heart, are call'd Emarginated Leaves.

EMBRYO is the tender Fœtus of the Plant.

ESCHARA. The *Eschara* is a stony kind of Plant, somewhat resembling a Web in its Contexture.

F

FIMBRIA, Fringe; those Parts of Plants or Flowers, whose Borders end in small Threads resembling fring'd Linen, are term'd fimbriated.

FISTULOUS PLANTS are such whose Stalks are hollow like a Pipe.

FLOS, that is, a Flower, is the Organs of Generation of both Sexes, adhering to a common Placenta, together with their common Coverings, or of either Sex separately, with its proper Coverings, if it have any.

The Flowers of Plants are distinguish'd by Botanists in the following manner.

FLOS AMENTACEUS, Amentaceous Flowers; these are such as are term'd Katkins.

FLOS APETALUS, Flowers without Petals; these are such as have no other Covering to the Parts of Generation but the Calyx.

FLOS CAMPANIFORMIS is such a Flower as is shap'd like a Bell. Those Flowers whose Edges spread very wide, are term'd open bell-shap'd Flowers; but those which are much less spread, are call'd tubulous bell-shap'd Flowers.

FLOS CARYOPHYLLEUS is such a Flower as is shap'd like a Clove-gillflower.

FLOS COMPOSITUS is a compound Flower, which is compos'd either of Florets or Semiflorets, or of both together. Of this kind is the Blue-bottle, Knapweed, and many others.

FLOS CRUCIFORMIS, a cross-shap'd Flower, which is compos'd of four Petals, plac'd in form of a Cross. Of this sort are the Cabbage, Mustard, and Wall-flower.

FLOS FLOSCULOSUS, a flosculous Flower, is that which is compos'd of several Florets, included in one common Cup.

FLOS INFUNDIBULIFORMIS, a funnel-shap'd Flower, is that which is shap'd like a Funnel. Of this kind is the Primrose, lesser Centaury, and many others.

FLOS LABIATUS, a Lip-shap'd Flower. This is an irregular monopetalous Flower, divided commonly into two Lips; the upper Lip is call'd the Crest, and the under one the Beard. Sometimes the Crest is wanting, and then the Style and Chives supply its Place. This is by some call'd an unilabiated Flower.

FLOS LILIACEUS, a Lily-shap'd Flower, is generally compos'd of six Petals, which resemble those of the Lily. Of this sort are the Tulip and Asphodel.

FLOS MONOPETALUS, a Flower compos'd of one Leaf. All those Flowers whose Petals are join'd at the Bottom, so that they fall off entire, are term'd monopetalous Flowers.

FLOS MONOPETALUS ANOMALUS, an irregular Flower, consisting of one Leaf.

FLOS PAPILIONACEUS, a papilionaceous or pea-bloom Flower, is one which, in some measure, resembles a Butterfly with its Wings expanded. It always consists of these four Parts; the Standard, (or *Vexillum*) which is a large erect Segment or Petal; the two Wings, (*Alæ*) which compose the Sides; and the Keel, (*Carina*) which is a concave Petal or Segment, resembling the Keel of a Boat; this is sometimes entire, and, at other times, it consists of two Petals or Segments, adhering pretty close together. Of this sort are the Bean, Pea, and Vetch, &c.

FLOS PERSONATUS, a personated Flower, that is, an irregular monopetalous Flower, whose upper Part resembles the Beaks of Fowls. Of this kind are the Snap-dragon, Toad-flax, and others.

FLOS PETALODES, a petalous Flower, that is, a Flower whose Organs of Generation are surrounded with Leaves or Petals.

FLOS POLYPETALUS, a polypetalous Flower, that is, a Flower compos'd of several Leaves or Petals. When these agree in Figure and Position, it is call'd a regular polypetalous Flower; but when the Petals do not agree in Figure and Position, it is call'd an irregular polypetalous Flower.

FLOS RADIATUS, a radiated Flower, consists of two Parts; the Disk, which is an Aggregate of Florets forming a plain Surface, and the Rays, which are several Semiflorets set round the Disk, in form of a Star. These are call'd radiated discous Flowers; but those which have no such Rays, are call'd naked discous Flowers.

FLOS ROSACEUS, a rose-shap'd Flower, that is, a Flower consisting of four or more Petals, which are plac'd circularly in form of a Rose.

FLOS ROTATUS, a Flower in the Form of a Wheel. Such are those of Borrage, Anagallis, and Willow-weed.

FLOS SCORPIOIDES, that is, when the Flowers are rang'd on one Side of the Pedicle, which twists at the Top in form of a Scorpion's Tail. Of this sort is the Heliotropium.

FLOS SEMIFLOSCULOSUS, a semiflosculous Flower; this is compos'd of several Semiflorets, included in one common Calyx.

FLOS SPICATUS, a spik'd Flower, is that whose Flowers are set thick on the Pedicle, in such a manner as to form an acute Cone.

FLOS STAMINEUS, a stamineous Flower, is that which is compos'd of many Chives included in a Calyx, having no Petals. Of this sort is the Bistort and Sparganium.

FLOS STERILIS, barren Flowers; these have no Embryo adhering to them; so are call'd Male Flowers, and False Flowers. Of this kind are the Melon and Gourd.

FLOS VERTICILLATUS, that is, a whorl-shap'd Flower. These Flowers grow closely united, surrounding the Stalk at the several Joints.

FLOS UMBELLATUS, an umbellated Flower, is, when the Extremity of the Stalk or Branch is divided into several Pedicles or Rays, beginning from the same Point, and opening in such a manner as to form a kind of inverted Cone, like an Umbrella. When the Pedicles, into which the Stalk is divided, are subdivided into others of the same Form, upon which the Flowers are disposed, the first Order is call'd Rays, the second Pedicles. That Umbel which consists of Pedicles only, is call'd a single Umbel; that which is compos'd both of Rays and Pedicles, is call'd a compound Umbel.

FLOS URCEOLATUS, or Pitcher-shap'd Flower. Of this sort are the Arbutus and Whortle-berry.

FOLIUM, a Leaf, is a Part of a Plant, extended into Length and Breadth in such a manner as to have one Side distinguishable from the other. This is call'd in *Latin Folium*, to distinguish it from the Leaf of a Flower, which is call'd *Petalum*.

FOLIUM ALATUM, a wing'd Leaf, is, as it were, compos'd of several pinnated Leaves.

FOLIUM ANGULATUM, an angular Leaf, is that whose Margin is cut into several Angles.

FOLIUM AURICULATUM, an ear'd Leaf, is that whose Base, next the Pedicle, is indented, somewhat resembling an Ear.

FOLIUM COMPOSITUM, a compound Leaf, is that which is divided into several Parts, each resembling a simple Leaf.

FOLIUM CRENATUM, a crenated Leaf, is that which is cut about the Edges into several obtuse Segments.

FOLIUM DIGITATUM, a digitated Leaf, is a compound Leaf, divided into several Parts, all of which meet together at the Tail, so as to resemble a Hand.

B O T

FOLIUM HEPTAFOLIATUM, a heptafoliated Leaf, is a digitated Leaf, consisting of seven Fingers.

FOLIUM INTEGRUM, an entire Leaf, is that which has no Division on the Edges.

FOLIUM LACINIATUM, a jagged Leaf, is that which is cut about the Edges into several deep Portions, in an irregular manner.

FOLIUM PENNATUM, a pennated Leaf, is a compound Leaf divided into several Parts, each of which is call'd a Lobe, plac'd along the middle Rib, either alternately, or by Pairs. When the middle Rib is terminated by an odd Lobe, it is call'd an unequal pennated Leaf; and when it is not terminated by an odd Lobe, it is term'd an equal pennated Leaf. When the Lobes are all nearly of the same Form and Bigness, it is call'd an uniform pennated Leaf; when they are not so, it is term'd difform.

FOLIUM QUINQUEFOLIATUM, a quinquefoliated Leaf, is a digitated Leaf consisting of five Fingers.

FOLIUM RAMOSUM, a ramose Leaf, is that which is still farther divided than the wing'd Leaf, as is the common or Female Fern.

FOLIUM SACITTATUM, a Spear-shap'd Leaf, is that which ends in three sharp Angles, resembling a Dart.

FOLIUM SIMPLEX, a simple Leaf, is that which is not divided to the Middle.

FOLIUM SINUATUM, a sinuated Leaf, is that which is cut about the Edges into several acute Segments, like the Teeth of a Saw.

FOLIUM TRIFOLIATUM, a trifoliated Leaf, is a digitated Leaf, consisting of three Fingers.

FOLIUM TRILOBATUM, a trilobated Leaf, consists of three obtuse Lobes, which are not divided to the Bottom.

FOLIUM UMBILICATUM, an umbilicated Leaf, is that which has the Pedicle fasten'd to the Backside of a Leaf, so that, on the upper Side of the Leaf, there is a small Cavity form'd like a Navel.

FOLLICULUS is a leafy membranaceous Sheath or Covering, which surrounds the Fruit or Seed; as the Winter-cherry.

FONTINALIS. The *Fontinalis* is a sort of Moss distinguish'd by its close uniform Heads, supported by none, or very short Pedicles, and, when come to Maturity, opening transversly in the upper Part, and discharging a Capitellum.

FORNICATUS, or fornicated Petals, are such Flower-leaves as are arch'd after the manner of the Galea, or Crest, of the Clary and Sage.

FRUCTUS, a Fruit. By the Word Fruit is to be understood the Seeds of all Plants, with their Covering.

FRUCTUS UMBILICATUS, an umbilicated Fruit, is that which had the other Parts of the Flower growing on its Top when it was an Ovary. They usually form a Cavity, which is known by the Name of the *Umbilicus*, or Navel; as in the Medlar, Rose, and Pomegranate.

FRUTEX, a Shrub, is a Plant with many woody perennial Trunks, such as Roses, Syringa's, and Spanish-broom, which divide into several Stems near the Ground; but the Word is frequently us'd by Gardeners for all woody Plants of low Growth.

FUCOIDES. The *Fucoides* is a Species of Plant which grows in Waters, and is of a middle Nature between the *Conserva*, *Corallina*, and *Fucus*. It is often finely divided, and of a more tender Substance than the *Fucus*, and not distinguish'd by Nodes, and Joints like the *Conserva* and *Corallina*.

FUCUS. The *Fucus* is a Species of Plant growing in Water, whose Leaves and Stalks are of various Figures. It is, for the most part, of a viscid and coriaceous Substance, and is furnish'd with Vessels on both Sides, which admit the Air, being form'd to assist its Floating. Its Extremities are often set with Tubercles, which seem to contain something of a seminal Nature.

FUNGOIDES. A *Fungoides* is a Species of *Fungus* without a Head or Cap, whose Pedicles or Stalks are of various Shapes and Divisions. As to its Substance, it consists of an uniform Matter, which is undivided into Lamellæ, or by Pores.

FUNGUS. A *Fungus* is the lowest, and a very imperfect Genus of Plants, having neither Seed nor Flower, as far as can hitherto be observ'd, and remarkably differing from other Plants, in that it has not an herbaceous Colour, nor Leaf, properly speaking, nor any thing else analogous in its Contexture. Most of them spring up in a very short time, and are as soon dissolv'd into the putrid Matter whence they arose.

G

GENICULUM, a Knot; such Roots and Pods of Plants are said to be geniculated, as are divided into Joints.

GLUMA is the Husk or Chaff of Corn.

H

HABITUS PLANTÆ is the outward Appearance of Plants, or what they call the *Port*.

HERBA, an Herb. By an Herb is meant all such Plants whose Stalks die to the Ground every Year. Those whose Roots do not continue longer than one Year, are term'd annual

B O T

Plants; those whose Roots continue two Years, are term'd biennial Plants; and those whose Roots continue many Years, are term'd perennial Plants.

HYPNUM. The *Hypnum* is a fertile kind of Moss, furnish'd with uniform calyptated Heads (*Capitulis*); the Calyptræ, for the most part, being situated obliquely on them. The Capitella fall off transversly, sometimes with an even, and sometimes with an indented Margin. The Pedicles, which, for the most part, are pretty long, proceed from the Sinuses of the Leaves, and shoot along by the little Stalks and Branches, and have their lowest Part inclosed in a squamous Sheath, which is different from the Leaves. To these Characters we may add, that the Stalks are, for the most part, set at a wider Distance, and more branch'd, than in the *Bryon*.

I

IMBRICATUS. The Leaves or Scales of Plants are said to be imbricated, when they are disposed so as to lie one on the Edge of the other, after the manner of Tiles on a House.

INTERNODIUM is that Part of the Stalks of Plants between the Knots or Joints.

IULUS is a Katkin.

L

LANUGO, Down. The Seeds of Plants which have a downy Substance fasten'd to them, which serves as Wings to transport them, are term'd lanuginous, as the Thistle: These are also call'd pappous.

LICHEN. The *Lichen* is a floriferous as well as seminiferous kind of Moss, whose flowery little Heads are furnish'd with many Grains, and are variously shaped, producing, as they ripen, several little monopetalous Flowers. The Seeds, which are small, flat, and orbicular, are contain'd in some peculiar open Capsules, resting upon the Plane of the Leaves; and are sometimes found in the same Plant that bears the little Heads, sometimes in other Plants of the same Species. Besides these flowery little Heads, there are observed in some Species some umbellated Heads of different Figures, which produce neither Flower nor Seed, as other Plants of the same Species usually do. The Pedicles of both Species are, for the most part, naked, and proceed from no Vagina. Tho' these Characters are very evident, yet, the more easily to distinguish it from the rest of the Tribe of the Mosses, we may add, that the Leaves are of an herbaceous Consistence, and of an indeterminate Figure, widely spreading, and running out into numerous Roots from their back Part.

LICHENASTRUM. The *Lichenastrum* is a fertile, or a remarkably floriferous, kind of Moss, with Heads supported by pretty long Pedicles; which Heads, as they ripen, usually cleave into four equal Parts, as far as the Base, and resemble a cruciform Flower, and discharge a very fine Dust, which answers to the fine Flour of the Apices in the most perfect Flowers: This Dust cannot be denied to be of the same Service in the rest of the Mosses, since the Dust of their Heads appears to be exactly of the same Figure and Contexture, if examined with a Microscope. The Heads of the *Lichenastrum* are simple and naked, each standing on its own Pedicle, which is longer or shorter, and proceeds from a Vagina or Sheath, sometimes simple, sometimes bivalve, and sometimes divided at the Top into several Parts, by which Character it is very clearly distinguish'd from the *Lichen*.

LICHENOIDES. The *Lichenoides* is distinguish'd from the *Conserva* and *Ulua*, by its Bosses and Tubercles; and from the *Lichen*, *Lichenastrum*, and others, by the same, and its being destitute of little flowery Heads, and consisting of a middle Substance between the *Fungi* and *Mosses*; whence many of its Species are usually call'd *Musco-fungi*.

The *Lichenoides* are divided into,

I. The Cauliferous, or Stock-bearing, which are subdivided into,

1. The capillaceous, not tubulous, and scutellated, that is, with Eminences like little Targets, from *Scutella*, a little Target or Buckler.

2. The coralliform, for the most part, set with Tubercles; and of this Sort there are (1.) the solid, and not tubulous; (2.) the tubulous.

3. The pyxidated, that is, hollow'd in form of a Box, in *Latin pyxis*.

4. The fungiform, or those resembling a *Fungus*.

II. The *Lichenoides* without Stalks, subdivided into

1. The purely crustaceous.

2. Those with a leafy, scutellated Crust, or scutellated Leaves, closely adhering one to another; and these are either (1.) of a Jelly-like Substance; or (2.) of a harder and juiceless Consistence.

3. Those with Leaves more at Liberty, and not growing so close to one another; and these are either (1.) with Leaves scutellated and tuberculated, or (2.) peltated.

LITHOPHYTON. A *Lithophyte* is a Species of Plant, of horny sort of a Substance, and of a middle Nature, between

Wood

B O T

Wood and Stone. There usually adheres to it a Bark, which consists of a Contexture of Fibres, or resembles Tartar. *Boerhaave* calls these *Keratophyti*.

LOCULAMENTA are the Cells in the Fruit of Plants, where the Seeds are lodged, which are divided by small Partitions.

LOCUSTA is the outer Covering of the Flower and Grain of Corn, which incloses the Chaff.

LYCOPODIOIDES. The *Lycopodioides* differs from the *Lycopodium*, in the same respect as the *Selaginoides* differs from the *Selago*.

LYCOPONIUM. The *Lycopodium* is a fertile kind of Moss, destitute, as well as the *Selago*, of Pedicles and Capitella: But it differs from the *Selago*, in that its Heads, or Capsules, grow not scatter'd in the Sinuses of the Leaves, but are collected into a Club; for each Scale covers a Kidney-shaped and bivalve Capsule, which loses no Part of itself when ripe.

M

MAILLEOLUS, Mallet. The Cuttings of Vines, which are taken with Joints of the old Wood to their Bottom, so as to resemble a little Mallet, are term'd *Malleoli*; which Cuttings more certainly take Root than any other, and always make better Plants.

MARGINATUS, border'd. The Seeds of Plants which have a thin leafy Border round them, are said to be marginated; as those of the Stock-gilly-flower, Honeysuckle, and others.

MNIUM. The *Mnium* is a fertile kind of Moss, furnish'd with little flowery Heads, or seminal ones, if they may be so esteem'd, which are of two Sorts; for some of them are naked and dusky, having neither Capsule nor Cover, nor so much as surrounded with a Membrane; but others are observed to be like the rest of the floriferous kinds of Moss, particularly the *Hypnum* and the *Brya*; and the different Manner of flowering is what distinguishes this Kind from all the rest. There is usually a Variety in the little Heads, sometimes in the same, sometimes in different Plants; and the Pedicles which support membranaceous Heads, are pretty long and bare; but those which have their Heads naked are observed to be much shorter than the others, and surrounded with very small Leaves.

MUCRO, a sharp Point. Those Leaves or Fruits of Plants, which are terminated in a sharp Point, are termed mucronated.

MULTICAPSULAR PLANTS are such as have several Pods of Seeds succeeding each Flower, as the Celandine, Columbine, and others.

N

NUCLEUS, a Kernel, is that Part of the Fruit which is inclosed in a hard Shell, as the Kernel of the Almond and Apricock.

O

OSSICULUM, a Shell, is the hard stony Covering of Seeds.

P

PANICULA, a Panicle, is a Stalk diffused into several Pedicles, sustaining the Flowers or Fruits; of this Sort are the Oat, Millet, and others.

PAPPUS, Down. See LANUGO.

PEDICULUS, a Pedicle, is that Part of a Stalk which immediately sustains a Leaf, a Flower, or a Fruit, and in *English* is call'd Foot-stalk.

PETALA, Petals, are the tender fine-colour'd Leaves, which are generally the most conspicuous Parts of a Flower; so those Flowers which consist of one Leaf, are call'd monopetalous Flowers; those of two Leaves are call'd bipetalous; those of three Leaves, tripetalous; those of four Leaves, tetrapetalous; those of five Leaves, pentapetalous; those of six Leaves, hexapetalous; and those of a greater Number of Leaves, are term'd polypetalous.

PEZIZA. The *Peziza* is a Species of *Fungus*, sometimes without Pedicles, and sometimes with them, having its Edges divided in such a manner as to form a remarkable Cavity between them. It is of an uniform Substance, like the *Fungus*, and neither distinguish'd by Lamellae nor Pores.

PISTILLUM, Pointal or Style, is that Column which occupies the Centre of the Flower, rising on the Top of the Embryo, and is generally surrounded with the Chives. These differ greatly in their Form; for in some Flowers they are roundish, in others triangular, oval, or square.

PLACENTA is that Part of the Pod or Husk of a Plant to which the Seeds are fasten'd, and by which they are nourish'd till they are ripe.

PLANTA, a Plant, is an organical Body, destitute of Sense, and spontaneous Motion, adhering to another Body in such a manner, as to draw from it its Nourishment, propagating itself by Seed. Under this generical Name are included Trees, Shrubs, Under-shrubs, and Herbs.

POLYPETALOUS, many Leaves. Those Plants are term'd polypetalous, whose Flowers are composed of several Leaves.

B O T

POLYTRICHUM. The *Polytrichum* is a fertile kind of Moss, whose Capitellum commonly quits the Plant transversely, with an even Margin; and is cover'd with an upright and villous Calyptra, with a Capitellum; by which Character it is distinguish'd from the *Bryon*. From the *Hypnum*, besides the Difference of the Calyptra, it is distinguish'd by its erect and less branch'd Stalks, which, from their Tops, or from annual Shoots, produce naked Pedicles, not having their lowest Part inclosed in a squamous Sheath.

POMUM, an Apple, is generally understood to be any fleshy Vessel, containing more Seeds than one; so that all Plants which produce such Fruit are term'd pomiferous, that is, Apple-bearing.

PRUNUM, a Plum, is a fleshy Vessel, inclosing a hard brittle Shell, in which are one or two Seeds; so that all Plants which produce such Fruit are term'd pruniferous, that is, Plum-bearing.

PULPA, Pulp, is the soft Part of Fruits which surrounds the Seeds, as in the Tamarind and Cassia.

PYRAMIDATUS, pyramidal. Those Flowers or Fruits which grow in form of a Pyramid, are term'd pyramidal.

R

RACEMUS, a Cluster, is a Stalk divided or branch'd into several Pedicles, sustaining the Flowers or Fruits thick set together (as in the Vine and Currant): The first of these Conditions distinguishes it from a Spike, the last from a Panicle.

RADIX, a Root, is that Part of a Plant by which it naturally receives its Nourishment. These are of different Forms and Contextures, some of them being fibrous, others fleshy or woody.

RADIX ASPHODELI, an Asphodel-root, is that which is composed of several oblong fleshy Knobs; of this Kind are the Kingspear and Day-lily.

RADIX BULBOSA, a bulbous Root, is that which consists of several Coats, involving one another, or of several Scales lying one over another. The first of these is call'd a tunicated Root; of this Sort are the Onion, Tulip, and Hyacinth (from whence the *French* call all these Sorts of Roots Onions); the last is call'd a squamous (or scaly) Root; of this Sort are the Lily and Martagon.

RADIX FIBROSA, a fibrous Root, is that which consists only of small Fibres like Hairs; of this Sort are Grass and Corn.

RADIX GRANULOSA, a granulous Root, is a kind of grumous Root, consisting of many small fleshy Knobs, resembling Grains of Corn; of this Kind is the white Saxifrage.

RADIX GRUMOSA, a grumous Root, is that which consists of many oblong fleshy Knobs, joined to one Centre at the Top; of this Sort is the Ranunculus.

RADIX PALMATA, a handed Root, is a tuberous Root, divided as it were into several Fingers, so as to resemble a Hand; of this Sort is the handed Orchis.

RADIX TESTICULATA, a testiculated Root, is a double tuberous Root; for it consists of two Knobs, resembling a Pair of Testicles: Of this Sort are some of the Orchis Species.

RADIX TUBEROSA, a tuberous Root, is that which consists of an uniform fleshy Substance, and is generally of a roundish Figure: Of this Sort is the Sowbread.

RAMUS, a Branch, is the Division of a Stalk; in Trees it is often call'd a Bough.

S

SELAGINOIDES. The *Selaginoides* is a kind of Moss, which agrees with the *Selago* in all respects, except its Heads, which consist of three or four Grains, and, when ripe, open, as it were, into as many Capsules: Of this there is but one Species hitherto known in *England*.

SELAGO. The *Selago* is a fertile kind of Moss, destitute of Pedicles and Capitella; for the Heads are situated in the Sinuses of the Leaves, being bivalve, and shaped like a Kidney; or, when ripe, cleave in two lengthwise, and discharge a mealy Substance, without letting go any Part of the Capitellum.

SEMEN, a Seed, is that Part of a Plant which is committed to the Earth, in order to obtain a Plant of the like Kind with its Parent Plant, which produced it.

SEMEN also signifies a Body perfected by the mutual Operation of both Sexes, containing the Rudiment of such Plant as that from which it was taken; so may properly be judged to be analogous to the Egg of an oviparous Animal.

SEMEN NUDUM, a naked Seed, is that which has no Covering, beside the Empalement, remaining upon it, till the time of Vegetation.

SEMEN PAPPOSUM, a downy Seed, is that which has a downy Substance, like Wool, fasten'd to it, by which it is transported in the Air to a great Distance from the Parent Plant.

SILICUA, a Pod, is a long, flat, or round membranaceous Vessel, containing one or two Rows of Seeds.

SPHAGNUM.

SPHAGNUM. The *Sphagnum* is a fertile kind of Moss, whose Heads are furnish'd with a Capitellum, in Shape like those of the Hypnum, Polytrichum; and Bryum; but differing from them in that they are bare, and without Calyptræ, and commonly stand on none, or but very short Pedicles; whence they were heretofore call'd *Musci apocarpi*.

SPICA, a Spike, is a Part of a Stalk; thick-set with Flowers or Fruit, in such a manner as to form an acute Cone.

SPONGIA, a *Sponge*, is somewhat like a *Fungus*, being a Plant that grows in the Water, thick, of a soft; and, as it were; woolly Substance, full of little Perforations, elastic, and easily imbibing and retaining Water, or any other Moisture.

STAMINA, or Chives, are those slender Threads which encompass the Style in the Centre of Flowers, and support the Apices or Summits which contain the Male Dust.

STOLONES, Suckers, are such Shoots of Plants as arise from the Root, and may be taken off, with Fibres to them, so as to propagate the Species thereby: Of this Sort are the Filbert and Fig.

STRIÆ, Channels. Those Parts of Plants which have small longitudinal Furrows running along them, are termed striated.

STROBYLUS is the Cone or Fruit of the Pine-tree.

SUFFRUTEX, Under-shrub, is a woody Plant, not gemmiparous: Of this Sort are Thyme, Sage, and Lavender.

T

TALEA, Cuttings, are such Parts of a Branch as, when cut off from the Tree, will take Root, if they are planted in the Ground.

THYRSUS, a Thyrse, differs from a Spike in having the Flowers or Fruits set more loosely on it, so that there are Spaces visibly between them.

TOMENTUM, Flocks, is when the Leaves or Stalks of Plants are cover'd with a thick Down, as in Mullein.

TRACHÆÆ are the Air-vessels in Plants.

TURIONES, Buds, are the future Shoots of Plants, which, being inoculated into a proper Stock, will produce a Tree of the same Kind with its Parent Plant, from which it was taken.

V

VAGINA; or THECA, is the Sheath or Covering of a Bud.

VALVÆ, Valves, the Sides of the Pod or Seed-vessel, which, when they open lengthways in two Parts, like Muscles, Cockles, and such kinds of Shell-fish, are term'd bivalve Pods, as in the Stock-gilly-flower.

VERTICILLUM. See FLOS VERTICILLATUS.

VEXILLUM, or *Standard.* See FLOS PAPILIONACEUS.

VIMEN is the flexible Shoot of a Tree.

VITICULÆ, Runners, are the slender Shoots of Plants, which trail on the Ground, and emit Roots at their Joints, so as to propagate; as in Strawberries and Cinquefoil.

ULVA. The *Ulva* is a barren kind of Moss, which differs from the *Conserua*, in that it consists of plain and very thin Leaves, which are sometimes wide, sometimes narrow, and sometimes tubulous.

UMBELLA. See FLOS UMBELLATUS.

UMBILICUS. See FRUCTUS UMBILICATUS.

Tho' Botany, as a Science, may to some appear a Study too flat and dull for what we commonly call an exalted and refined Genius; yet, if we cast our Eyes back on the earlier Ages, and trace this Branch of Learning down to our own Times, we shall find, that it has been cultivated by those of the brightest Parts, and caref'd by Men of great Distinction. As a Proof of this, I shall first mention *Solomon*, that venerable *Eastern* Sage, so famed for his Wisdom, that his very Name is become another Term for a wise and knowing Man. This Prince, tho' born to a Throne, and destin'd to rule over a powerful People, was yet so captivated with the Charms of Botany, and so strongly addict'd to the Study of Plants and Herbs, that he is in Scripture said to have known them all, from the Cedar of *Lebanon* to the Hyssop that grows upon the Wall; and he himself, in the Book of *Wisdom*, informs us, that he was skill'd in the Differences of Plants, and the Properties of Roots. *Josephus*, also, that celebrated *Jewish* Historian, makes mention of *Solomon's* Skill in Botany, and gives us almost the same Account with that laid down in the Sacred Records. But however knowing *Solomon* might be in this respect, yet 'tis certain, we are at present no competent Judges, how far his Knowledge might have reach'd, and consequently cannot determine positively with regard to the State of Botany in his time. He began to reign in the Year of the World two thousand one hundred and twenty-nine, that is about an hundred and seventy Years after the Siege of *Troy*, and is said to be the first Botanist mention'd by any Records now extant.

But as 'tis an unpleasant Thing to grope, if I may so speak, in the dark, and a criminal Thing to advance imaginary Facts for historical Truth, we shall pass the State of Botany during

the Ages which interven'd betwixt *Solomon* and *Hippocrates*; the great Founder of Physic.

This Physician was, according to most Historians and Chronologers, born in the Island of *Cos*, in the first Year of the eightieth Olympiad, that is, about four hundred and fifty-nine Years before Christ. Some maintain, that he died in the eighty-fifth, others in the ninetieth, others in the hundred and fourth, and others in the hundred and ninth Year of his Age. So that according to these different Accounts he must have died, either three hundred and seventy-four, or three hundred and sixty-nine, or three hundred and fifty-five, or three hundred and fifty Years before Christ. As in this Physician's Days it was customary for those who were cured of Diseases to fix up in the Temple of *Æsculapius* an Account of their Disorders, and the Medicines by which they had been removed, that the same Remedies might afterwards be used in parallel Cases; he is said to have wrote out these Accounts, and, according to *Varro*, constituted by their means what we call *Clinical Medicine*, after the Temple was burnt; for this Reason we find the Writings of *Hippocrates* interspersed with the Names of the Plants most known to the *Greeks*, and Accounts of their Uses and Virtues. But he would have done a further Service to Botany, and still more effectually consult'd the Health and Welfare of Posterity, if he had given us Descriptions of them. But he has only mention'd the Names and Virtues of about two hundred and thirty-four, leaving their Descriptions to *Crates*, the most celebrated Botanist of his Time, whilst he himself was wholly employed in curing the Sick.

This *Crates* or *Cratæus*, was Cotemporary with *Hippocrates*, and so skillful a Botanist, that this divine Physician styl'd him *ἀρχιεπιδόμος*, the Prince or Chief of Botanists; and publicly profess'd, that he admir'd his Skill and Knowledge of Plants and Herbs. This *Crates*, and *Andreas Medicus*, who are thought to have been the most skillful Botanists in the Times in which they liv'd, are yet charg'd by *Dioscorides* with having left many useful Roots and Herbs imperfectly describ'd. But, however imperfect the Works of *Crates* may have been, yet 'tis certain, Botany has in After-ages sustain'd a considerable Loss for want of them; since in all Probability he describ'd the Plants mention'd by *Hippocrates*. Whether this Conjecture be well founded, they who have an Opportunity of looking into the Fragments of *Crates* still preserv'd in the *Imperial Library*, are best able to judge.

The next Botanist of any Note who appear'd was *Theophrastus*, the Son of *Melantus* a Fuller of Cloth. This Author justly deserves the highest Encomiums for his History of Plants, and his Treatise intitled, *ἐν τῇ αὐτῇ βιβλίῳ*, or *eight Books concerning the Causes of Plants*, of which the first six have only reach'd our Hands. He was first call'd *Tyramo*, according to *Diogenes Laertius*; but was afterwards call'd *Theophrastus* by *Aristotle*, on account of his uncommon Eloquence. He is said to have had two thousand Disciples at one time, a Circumstance which sufficiently proves the Reputation he had acquir'd. He was born at *Ereus* in the Island of *Lesbos*, and studied under *Leucippus*, *Plato*, and *Aristotle*, whom he succeeded in the hundred and fourteenth Olympiad, in the Beginning of the Reign of *Ptolemy* the Son of *Lagus*, under whom *Herophilus* flourish'd. Tho' *Theophrastus* liv'd till he was eighty-five Years of Age, he is said to have found Fault with Providence for giving a longer Life to Deer and Ravens, than to the human Species; since Men, if their Lives were longer, might acquire greater Degrees of Knowledge, and become more perfect than they really are when they come to die.

The *Romans*, tho' in other respects a polite and learned People, were nevertheless Strangers to Botany till *Pompey* conquer'd *Mithridates*, the most powerful, and at the same time the most knowing King then in the World. This Prince is reported to have drunk poisonous Draughts every Day, in order to render himself proof against Poison; and indeed so curious he was with regard to Medicinal Subjects in general, that he collect'd all the Observations of this Nature he possibly could, which, falling into *Pompey's* Hands, were by his Order translated into *Latin* by one *Lenaxus*, a skillful Grammarian, and a freed Man of his own. Till this Time, according to *Pliny*, the *Romans* were entire Strangers to Botany; and even after this Science was known in *Rome*, it was not universally cultivated, for *Marcus Cato* alone is said to have apply'd to it. Nor after him do we read of any Botanist among the *Romans*, till *Caius Valgius* publish'd a very imperfect Work of this kind, dedicated to *Augustus*. After *Valgius*, appear'd *Marcus Terentius Varro*, about twenty-five Years before the Birth of Christ. This *Roman*, however skillful in Botany, wrote nothing on the Subject till the eighty-first Year of his Age. He has wrote three Books *de Re Rustica*, which make a Part of that valuable Collection which goes under the Name of *Rei Rusticæ Scriptores*.

Much about the same time lived a considerable Number of Physicians well versed in Botany. Of these the most celebrated are *Antonius Musa*, and *Euphorbus*, the former of whom saved the Life of *Augustus*, and wrote a Treatise on Botany, dedicated to *Marcus Agrippa*; which Work has been revised by *Gabriel Humbelbergius*, of *Ravensburg* in *Germany*, and printed at *Zurich*, together with *Apuleius's* *Treatise de Medicaminibus Herbarum*.

The next Roman Botanist who appeared was *Æmilius Macer*, who was born at *Verona*, and died in *Asia*, whither he had gone to fight. As this Author had a Turn for Poetry, he clothed Botany in Numbers so agreeable and soft, as to deserve the Approbation of *Ovid*. See *ÆMILIUS MACER*.

Next appear'd *Julius Bassus*, and *Sextius Niger*, who, tho' both Romans, yet wrote in *Greek* concerning Plants. These Authors have but little Regard paid them by *Dioscorides*, a little before whose Age, or that of *Pliny*, *Salmasius* thinks they liv'd.

But hitherto Botany seems only to have been, as it were, in its Infancy, till *Dioscorides* arose, who, by his Industry and Diligence, surpassed all who had gone before him. He was born at *Anazarba*, a City of *Cilicia*, afterwards called *Cæsarea Augusta*. He is commonly distinguished from the others of his Name by the Epithet *Pedacius*, which *Photius* without any Reason supposes to be bestow'd on him from his Country. In some Manuscripts the Epithet is read *Pedanius*, and 'tis pretended, that *Dioscorides* receiv'd that Part of his Name from the *Pedanian* Family, as other Foreigners did from the Roman Families into which they married. But *Lambecius* was probably in the Right, when he supposed, that this Epithet was bestow'd on him, because he was the Son of one *Pedanius* or *Pedianus*, as that Author would have it.

From the Works of *Dioscorides* it plainly appears, that he was contemporary with *Licinius Bassus*, who in Conjunction with *Crassus Frugi* had been Consul under *Nero*. But the Time in which he flourish'd is a Point so much controverted, and so little capable of being fix'd, that it would be a Task both tedious and useless to attempt it. In his Works he has mention'd about six hundred Plants, four hundred and ten of which he has either describ'd or compar'd with such as were better and more universally known, but of the rest he has only given us the Names and Virtues.

Soon after *Dioscorides* appear'd *Lucius Junius Moderatus Columella*. He was born at *Cadiz* in *Andalusia*, and the Time in which he liv'd may be determin'd from his having been contemporary with the *Senecas*, and his quoting *Lucius* the Philosopher as then alive. Other memorable Incidents concur to render us sufficiently certain as to the Time in which he flourish'd; for he was the intimate Acquaintance of *Gallio*, and wrote his Work after the Consulship of *Lucius Volusius*. We have only thirteen Books of his *de Re Rustica*, and one *de Arboribus*, tho' *Cassiodorus* attributes sixteen to him. In the first Chapter of his first Book he enumerates not only the Roman, but also the other foreign Authors who had wrote upon Agriculture before him. The delicate and polite Turn of his Language, together with his Learning, and the Force of his Genius, justly calls for our Admiration. In his Poem intitled *Hortulus*, the Numbers are soft, harmonious, and unsullied with that unmeaning Pomp of Words, which is the Reproach of Language, and the common Bane of the ill-form'd and luxuriant Genius. But, among all the Romans, none seems to have made more surprising Advances in Botany than *Plinius Secundus*. In his History of the World, which he dedicated to the Emperor *Vespasian*, or, according to others, to *Titus*, he treats of Plants in an historical, philosophical, medicinal, rural, and magical Light. This, according to *Gesner*, is his Design from the twelfth to the twenty-seventh Book. His Work consists in all of thirty-seven Books, which contain a great Part of the Writings of *Dioscorides*, whom he no-where quotes, having in all Probability used the very same Authors, from whom that Author had made his Collections. He also translated several Things from *Theophrastus's* History of Plants, and is thought to have been no very happy Translator, however bright his Genius might be in other respects. The precise Time in which he liv'd is much disputed: However, 'tis, I think, generally agreed, that he flourish'd pretty near the Time of *Dioscorides*. He is by some censur'd as wanting some of the Qualifications most necessary for producing a Botanist, whilst others are so blindly devoted to his Character, as to believe him infallible.

The next of the Romans who distinguished himself in this Way, was the illustrious *Palladius Rutilius Taurus Æmilianus*, tho' he is more properly to be class'd among the *Groponics*, *Cato*, *Varro*, and *Columella*. He wrote fourteen Books *de Re Rustica*. According to *Ludovicus Vivès*, he wrote in a pure and elegant Style, except that some Words and Phrases are peculiar to the Time in which he lived. *Johannes Juvenius* of *Verona*, in *Pres. Lib. de Re Rustica*, gives him an ample, and at the same time a just Character in the following Words. "When, says he, amongst other Books of Agriculture, I

"read the Works of *Cato*, *Varro*, *Columella*, and *Palladius*,
"I could not help being charm'd with the delightful Study;
"for I imagin'd I was transported to the Country, placed in
"some agreeable Village, and leading the calm and blissful
"Life of *Marcus Curius*, and *Lucius Quintius Cincinnatus*;
"the former of whom, after having triumph'd over the *Samnites*,
"the *Sabines*, and *Pyrrhus*, retir'd to the Country to
"spend the Remains of a glorious Life, where, having a large
"Quantity of Gold brought him by the *Samnites*, he bravely
"refused the magnificent Present, and told them, his
"Grandeur did not consist in the actual Possession of Gold, but
"in ruling over those who possess'd it." And the other, being
"created Dictator, was honourably invited to leave the Country,
"and take his Place in the Senate.

From these Accounts 'tis plain, that the Diligence and Industry of the Romans were more employ'd in cultivating Agriculture than Botany; in which they were surpassed by the Greeks, amongst whom the most considerable, who apply'd to the Study of natural Things, was *Claudius Galenus*, who, next to *Hippocrates*, was justly accounted the greatest Ornament of antient Medicine. He was born at *Pergamus*, a most flourishing City of *Asia*, about the Year of Christ 133. under the Reign of the Emperor *Adrian*; and flourish'd under *Antonius Pius*, *Marcus Aurelius*, *Antoninus*, *Commodus*, *Pertinax*, *Didius Julianus*, and *Septimius Severus*. He died under the Reign of *Caracalla*, after having lived, according to *Suidas*, seventy, according to *Laertius*, eighty-seven, according to others, ninety-eight, or an hundred and five Years. He was a curious and indefatigable Inquirer into the Virtues and Qualities of natural Bodies, with which View he undertook several Voyages. He went, for Instance, into *Palestine*, in order to get acquainted with the *Opobalsamum* and *Bitumen*; he sail'd into the Island of *Lemnos*, that he might discover whether the Accounts he had receiv'd of the *Lemnian* Earth were true or false. He visit'd *Cyprus*, in order to take a View of the celebrated Mines of that Country. He also travelled into *Cilicia*, *Phœnicia*, *Crete*, *Egypt*, and several other Countries, to enrich his Mind with a proper Store of useful Observations. He has treated of the Virtues of about four hundred and forty Plants, in the sixth, seventh, and eighth Books of his Treatise, *de Simplicium Medicamentorum Facultatibus*, besides many more, which he has casually describ'd on different Occasions.

I now proceed to those who after *Galen's* Time apply'd themselves to the *Materia Medica*. The first of these who distinguished himself was *Oribasius* of *Sardis*, tho' *Cniringius* endeavours to prove, that he was a Native of *Pergamus*: This Author was contemporary with *Julian* the Apostate, whose Favour he had so effectually gain'd, as to be appointed Quæstor of *Constantinople* by him. He wrote many Things concerning simple and compound Medicines; but stole most of his Works from *Galen*, except some foolish and trifling Things he has added of his own.

Next appear'd *Actius*, distinguish'd by the Epithet *Amidenus*, because born at *Amida*, a City of *Mesopotamia*. He has written pretty much in the same manner with *Oribasius*, since like him he has borrow'd a great many Things from other Authors. *Castellanus* seems to give him a favourable Character, when he asserts, that in his Works we have *Galen* contracted, *Oribasius* explain'd, and *Paulus Ægineta* enlarg'd. This Author flourish'd in the Year of Christ three hundred and fifty, or, according to others, four hundred and fifty-five, which was more early than *Paulus Ægineta*. See *ÆTIUS*.

Alexander Trallianus, so called from *Tralles*, a City of *Lydia* in the lesser *Asia*. He has several Things relating to Herbs, principally borrow'd from his Predecessors. See *ALEXANDER*.

After *Trallian* appear'd *Paulus Ægineta*. This Author copies pretty exactly *Dioscorides* and *Galen*, with respect to Plants. See *ÆGINETA*.

But *Gesner*, tho' a severe Censurer of these three Authors, yet seems to have entertain'd more favourable Notions of the Arabian Physicians than the rest of his Contemporaries; for the *Materia Medica*, during many Years cultivated only by the Greeks, was at last so considerably enriched by the *Arabians*, that a great part of the Medicines now in Use are to be ascribed to them. They receiv'd Botany, as well as all the other Branches of Physic, from the Greeks, especially after the Califs ordered the Productions of the Greek Authors to be translated into the Persian Language. The first who applied to the Sciences among them, was the second Calif *Abu-Jaafar Almanzor*, who was created Calif in the Year of Christ seven hundred fifty-four. But the Empire at last falling into the Hands of the seventh Calif *Abdalla Almamunem*, in the Year of Christ eight hundred and thirty-one, he interceded with the Greek Emperors to send him all the philosophical Works they possibly could; which Favour when they had granted him, he sought out for learned Interpreters, and order'd them to be faithfully translated. Then Learning began to flourish, and all the Branches of Medicine were cultivated with uncommon Care and Industry.

But

But of all the *Arabians*, none was more successful in carrying on this Design than *Serapio*, who collected and digested all the *Greek* and *Arabian* Authors who had wrote on Simples before his Time. The greater Part of this Work consists not only of the Materials, but also of the very Words, of *Dioscorides* and *Galen*; but yet it contains a great Number of Simples not taken from the antient *Greeks*. Some of these are at present known, whilst we are entire Strangers to the rest. According to *Wolfgangus Jussus*, he flourish'd in the Year one thousand and sixty-six.

Next appear'd *Razis* or *Razy*, or *Arrazy*, which Name he receiv'd from *Rei*, the City of *Persia* in which he was born; for his original Name was *Aboubieri Mouhammad*. He is by some quoted under the Name of *Almanzor*, and his Book called *Almanzor* or *Manzor*. His Book is, as it were, an Abstract of thirty other Volumes, which he called *Al hhaouy*, which in the *Arabian* Language signifies *Containing*, because it was thought to contain uncommon Treasures of useful Knowledge. He likewise published *Aljania*, which was an immense Collection of Things relating to Physic; and some Treatises concerning the Parts of the human Body. He flourish'd, according to *Wolfgangus Jussus*, in one thousand and seventy, or one thousand and eighty-five.

Next appeared *Avicenna*, by some called *Avicena*, or *Abensina*, or *Ben Sina*, or *Abuali Ibn Tinsa*. His second Book treats of all kinds of Medicines in general. In this Work he quotes *Galen*, *Dioscorides*, and a few *Arabian* Authors. See *AVICENNA*.

Actuarius, who lived about this Time, or perhaps a little later, has not much contributed to the Improvement of the Knowledge of Plants; all that he says concerning them being taken from others. See *ACTUARIUS*.

Next appeared *Johannes Mesues Damascenus*, the Son of *Abdela* King of *Damascus*. He acquir'd an uncommon Fame for his having been the Inventor of many of the Medicines which we daily use with Success. He flourish'd in the Year of Christ one thousand one hundred and fifty-eight.

Averrhoes about the same Time distinguished himself by the Improvements he made in the *Materia Medica*. This Physician collected an Account of the most remarkable Plants from *Galen's* Books of simple Medicines, and reduced them to the Order of the *Greek* Alphabet, as *Gesner* observes.

Next appeared *Baitar*, by others called *Ibnu El Baitar*, as also *Abenbaitar*, or, as others write it, *Ebenbaitar*. He was born at *Malaga*, in the Year of Christ one thousand two hundred and sixteen.

It must be confessed, that Botany is much indebted to the *Arabians*, who, tho' they borrow'd much from the *Greeks*, have enriched the *Materia Medica* with many Plants unknown to their Masters, among which are most of the milder Cathartics.

After the Time of these *Arabians*, a shameful and almost universal Ignorance prevailed, and the Monuments of Learning handed down from former Times were, excepting a very few, buried in Oblivion. The barbarous and ill-form'd Taste which reigned in these Days, is sufficiently prov'd by the Works of *Nicolaus Myrepsus* of *Alexandria*. We cannot precisely fix the Time in which he liv'd; yet, according to *Fuchsius*, he was among the later *Greek* Writers, since he quotes *Actuarius* and *Mesue*, who lived in the Year of Christ one thousand one hundred and fifty-five. His Style is uncorrect, and his Works abound with barbarous, and ill-chosen Words.

In the Year one thousand one hundred and eighty, appear'd *Hildegardis*, Abbot of *St. Rupert's* Monastery in *Mentz*, and one of the *Benedictine* Order. He enriched several Parts of Natural Knowledge, and among the rest Botany; but writes in a very barbarous Style, and has many Things which are not only trifling, but also superstitious, and repugnant to Truth and common Sense.

Next appear'd *Johannes Platerius* of *Salerno*. He flourish'd in the Year of Christ one thousand three hundred. As the Reader will be best able to judge both of his Design, and of his Style, from some of his own Words, I shall insert the following Passage of his Preface.

"In Traditione, says he, uniuscujusq; Medicinæ simplicis Complexio rerum primo est intendenda, consequenter utrum sit Arbor, an Frutex, Herba, Radix, an Flos, an Semen, an Folium, an Lapis, an Succus, an aliquid aliud: Postmodum quot sunt ipsius Maneries, & qualiter fiant, & in quo loco inveniantur. Quæ etiam Maneries sit melior, qualiter sophisticantur, & sophisticatæ cognoscantur."

Much about the same Time *Matthæus Sylvaticus*, of *Mantua*, compil'd a Volume of the Pandects of Medicine, and dedicated it to *Robert* King of *Sicily*; but this is a Work of so little Value, with respect to Botany, that we shall not spend Time in giving any Account of it. Its Author liv'd in 1336. Nor is a much greater Regard due to the Productions of *Arnaldus de Villa Nova*, who died in the Year 1412. or those of *Jacobus de*

Dondis, of *Pavia*; or of *Petrus Crescentiensis*, a Senator of *Bologna*, who wrote in the Year 1473.

Soon after appear'd *Johannes Cuba*, *Quiricus de Augustis de Thertona*, *Johannes de Bosco* of *Alexandria*, and *Paulus Suardus* of *Milan*; but the Works of these Authors are so obscure, and full of Blunders, that they scarce deserve our Consideration.

About this time *Avicenna* was first read in the Schools. *Theo Razis*, especially his ninth Book to *Almanzor*. Numbers of the later practical Physicians were also study'd, whilst the *Greeks* were entirely neglected, and forgot so much, that the Names of *Hippocrates* and *Galen* were lost, or rather chang'd into those of *Hippocras* and *Galienus*.

Thus, for about four Centuries, Barbarity and Ignorance had almost put an End to the Sciences; and banish'd Learning from the World, till at last, about the End of the fifteenth Century, propitious Heaven rais'd up some great Men, who rescu'd the Authors of Worth and Note from the shameful Oblivion in which they had been bury'd. At this happy Conjunction, *Botany* had the same good Luck with other Parts of Learning; for *Theodorus Gaza* restored *Theophrastus*, and translated his Works into *Latin*, in which he is thought to have succeeded very well. He died in *Rome* in the Year 1478.

After him appear'd *Hermolaus Barbarus*, a *Venetic* Nobleman. He was born in the Year 1454. He corrected *Pliny's* Natural History, and translated *Dioscorides* into pure and beautiful *Latin*; but he is thought to have receded too much from the Meaning of the Original, that he might imitate the Style of *Pliny*. *Fuchsius* commends him for the reasonable Aid he gave to Botany and Physic, and the Pains he was at in improving and enriching them, tho' he was himself no Physician.

Soon after arose *Johannes Ruellius*, born at *Seiffons* in *France*, and a Man of uncommon Learning. He seems to have trod in the Footsteps of *Hermolaus Barbarus*, and pursued the same Design of banishing and exploding the Jargon of *Avicenna*, and some other *Arabians*, that we might draw our Knowledge of Plants from *Dioscorides* himself. He cultivated Botany with greater Care than any of his Contemporaries, and collected all the useful Observations which *Theophrastus*, *Pliny*, and *Galen*, had made concerning Plants.

He was soon after succeeded by *Marcellus Virgilius*, a *Perentine*, who, tho' not a Physician by Profession, nor, perhaps, very skilful in Botany, is, nevertheless, to be commended for his Industry in correcting, and restoring to their antient Splendor, some Pages of *Dioscorides*, which had been wretchedly mangled and corrupted.

Marcellus was succeeded by *Joannes Manardus* of *Ferrara*, a celebrated Physician. In his Epistles there are many Things which illustrate *Dioscorides*, especially in the eighth Book, where he corrects *Marcellus's* Version in many Places, and defends the Interpretations of *Ruellius* and *Hermolaus Barbarus*. He also wrote Annotations on the *Medicamenta Simplicia* of *Joannes Mesue*, in which, if we may believe his own Word, many obscure things are made plain, those that were formerly too concise enlarg'd, such as were lost restor'd, and such as were erroneous corrected.

In the same Age appear'd a great Number of Interpreters, Critics, and Restorers of *Theophrastus*, *Dioscorides*, and *Pliny*. Amongst the rest, *Nicolaus Leonicenus*, in his Work *de Plinii & aliorum in Re Medica Erroribus*, delivers many things of great Importance with respect to the Knowledge of Plants. He was born at *Vincentia* in the Year 1428. and died at *Ferrara*, (where he had taught for sixty Years) in 1524. after he was ninety-six Years of Age. When he was ask'd what medicinal Secret he us'd, in order to preserve so uncommon a Vigour both of Mind and Body, and elude the Attacks of old Age, since he us'd no peculiar Diet which could account for such happy Effects, he made this noble Reply: "I easily preserve my Mind lively, by a Reflection on the perpetual Innocence of my Life; and my Body sound and healthful, by a cheerful Frugality." According to *Scaliger*, this Author was, from his Infancy, afflicted with violent epileptic Fits, till the thirtieth Year of his Age; after which this formidable Disease left him, and he enjoy'd the perfect Use of all his Limbs and Senses, without the Suspicion, much less the Shock, of a Disease, till he was ninety-six Years of Age. If this Circumstance is true, he was singularly indebted to his Temperance; for, according to *Paulus Jovius*, he was highly abstemious in every respect. He first translated *Galen's* Works from the *Greek* to the *Latin* Language, and illustrated them with Commentaries.

In 1534. appear'd *Antonius Musa Brasavolus* of *Ferrara*. He publish'd an Examination of all the Simple Medicines used in the Shops, in which Work he often treats of Plants. He also wrote Commentaries upon the Aphorisms of *Hippocrates*, and compil'd a large Index to all the Works of *Galen*.

Brasavolus was succeeded by *Otho Brunfelsius*, who was born at *Mentz* in *Germany*. He was first a *Carthusian* Monk, then a Schoolmaster for nine Years, and, last of all, a Physician. He was a Man of singular Learning, and attempted to restore and illustrate Botany, both in the *Latin* and *German* Languages. Tho', in his Works, many things are incorrect, tho'

tho' the Descriptions do not correspond to the Draughts, and tho' he often calls Herbs by their wrong Names, yet he was the first who restor'd the true way of drawing Herbs in Germany. He was at last call'd to Bern in Switzerland, where he practis'd with such Success as to acquire an uncommon Reputation; but he died about a Year and an half after he had settled there, in the Year 1534.

Brunfelsius was succeeded in his Design of restoring and enriching Botany, by *Euricius Cordus*, born at *Hesse* in Germany. He practis'd and taught Medicine at *Erford*, *Marpurg*, and *Bremen*. Besides his Skill in Poetry, and other fine Accomplishments, he was a Man of untainted Morals, and singular Industry. How much he has contributed to the Improvement of Botany, may be judg'd from his *Botanologicon, seu Colloquium de variis Herbis*. He died in the Year 1538.

Nor are we to pass over in Silence *Gualterus Hormenius Riffus*, Professor at *Strasbourg*, and *Joannes Lonicerus*, Professor at *Marpurg*; the former of whom has follow'd *Ruellius*, and the other *Marcellus*, in interpreting *Dioscorides*. *Gesner* gives both these Authors such a wretched Character, as would induce one to neglect their Productions, as worthless and insipid Jargon.

But the greatest Illustrator of *Dioscorides*, and the most happy Discoverer of Plants before unknown, was *Valerius Cordus*. He was born in *Hesse* in the Year 1515, and died at *Rome* 1544, in the twenty-ninth Year of his Age. He was more industrious in enriching Botany, than many of those who had gone before him. Besides his exquisite Annotations on *Dioscorides*, he compil'd an History of Plants, in four Books; but as he died before that Work was completed, all his Descriptions are not equally exact and just.

In 1550, appear'd *Amatus Lusitanus*, who is by some call'd *Joannes Rodericus Lusitanus*, and *Joannes Rodericus Castellus albi*. He wrote Illustrations upon *Dioscorides*, in which he often talks of things to which he was an entire Stranger.

But *Andreas Lacuna*, of *Sagoria*, is an Author far preferable to *Amatus Lusitanus*. He was chief Physician to *Julius* the Third. In the *Spanish* Language he wrote Commentaries and Annotations on *Dioscorides*, but is severely censur'd for being a Plagiarist by *Martinius*. He also translated that Work concerning Plants, attrib'd to *Aristotle*. He died in the Year 1552.

Leonardus Beckius, call'd commonly *Beck*. He is known by the Name *Tragus*, and was born at *Hiedlsbach*, a Village of *Bozaria*, near the City of *Spires*. He liv'd for some Years at *Dauerns*, where he adorned the Gardens of Duke *Lewis*, Palatine of the *Rhine*, with a Variety of Herbs formerly unknown in it. He compos'd a History of Herbs at *Saarbruck*, and died in 1554.

Next appear'd *Joannes*, or *Janus Hagenbut*, or *Hagenbut*, who was call'd *Cernarius*, tho' *Hagenbut* signifies the Fruit of the Dog-rose. He was born at *Zucca*, a City of *Misina*, in the Year 1520. He translated *Dioscorides*, and added Figures to each Chapter. Tho' in this Work he does not discover a more extensive Knowledge in Botany than some who had gone before him, yet he re-establishes the genuine Readings in numberless Places. He had for an Antagonist *Leonardus Fuchsius*, who finds fault with a great many Passages in his Translation. He died in 1558.

Next appear'd *Jacobus Goupylus* of *Peitlers*. He was Doctor of Physic at *Paris*, and very skilful in the *Greek* and *Latin* Languages. He gave some very short, but, at the same time, very useful Amendments of *Dioscorides*. He diligently and judiciously revised *Trallian*, *Aetnarius*, and some others. He died in the Year 1560.

At *Homburg*, in the Country of the *Grisons*, was born *Leonardus Fuchsius*, in the Year 1501. He was a Man of uncommon Application, and a diligent Inquirer into the Plants of Germany, five hundred and ten of which he represented in large Figures, to the no small Improvement of Botany. But he was too closely attach'd to *Dioscorides*, that he endeavour'd to accommodate *Dioscorides's* Descriptions to the German Plants; which made him sometimes affirm, that things were clearer than the Light, when they were, at the same time, involved in the greatest Darkness and Obscurity. He died at *Ingolstadt* in the Year 1566.

The same Year deprived the World of *Gulielmus Rondeletius*, a celebrated Physician, born at *Montpelier*. He was indefatigably laborious in discovering and finding out Simples, and their Virtues. He wrote Commentaries upon several Parts of *Dioscorides*, which were much esteem'd by the Botanists who liv'd at the same time with himself. He died in 1566.

William Turner, an English Physician of singular Learning, in 1551, publish'd an History of Plants in English; in which Work he has, for the most part, publish'd the Figures of *Fuchsius*, and given the Names of the Plants in *Latin*, *Greek*, *English*, *German*, and *French*, in an alphabetical Order.

Nor ought we to forget *Lucas Ghini* of *Ferli*, a Physician of an excellent Genius, and uncommon Learning. He profess'd the *Materia Medica* at *Pisa* for several Years with universal Approbation; and tho' he publish'd nothing himself, yet he

was either the Master, or the intimate Acquaintance, of those celebrated Men, *Casparinus*, *Anguillara*, *Marantha*, *Matthiolus*, and some others, to whom he not only sent Plants, but openly deliver'd his Opinion of them; by which means he contributed considerably to the Illustration of former Authors, and the Improvement of Botany.

Petrus Andreas Matthiolus was born at *Sienna*, a celebrated City of *Tuscany*. *Thuanus* gives him a very great Character for a skilful Botanist. But however well acquainted *Matthiolus* might have been with the Writings of the Antients, yet he was so ignorant of the common Plants, that of the whole nine hundred he has treated of, he has scarce given an accurate Description of one. He died of the Plague at *Trent* in the Year 1577.

Bartholomæus Maranta, a Physician of *Venusium*, compos'd three Books on the Method of knowing simple Medicines, which are highly useful for understanding many Passages of *Dioscorides*. He died in the Year 1554.

Adamus Lonicerus was born at *Marpurg* in *Hesse* in 1528. He was a learned Physician, and a skilful Botanist, as is obvious from his *Botanicon*, his *Historia Plantarum*, and his *Herbarium*, publish'd in the German Language. But *John Bauhine* seems to have judg'd rightly of *Lonicerus*, when he affirms, that he collect'd his Botanical Works from *Tragus*.

Nor at this time were there wanting Men of Learning, who either went to both *Indies* themselves, in order to discover the Spices and Plants produc'd in them, or treated largely of them after they were brought into *Europe*. Amongst these were *Garcias ab Horto*, *Christophorus a Costa*, *Nicolaus Monardes*, *Gonsalvus Ferdinandus Oviedo*, *Franciscus Lopez de Gomara*, *Joannes Fragosus*, *Hugo Linfchotanus*, *Joannes Leirius*, *Franciscus Hernandez*, *Franciscus Ximenez*, *Josephus a Costa*, and, nearer our own Times, *Jacobus Bontius*, of *Rotterdam*, *Gulielmus Piso*, a Physician of *Amsterdam*, *Georgius Marcgravius*, of *Liebstad*, and some others.

Among those who have more particularly applied themselves to the Knowledge of Plants, was *Jacobus Dalecampius*, who was born at *Cadom*. He practis'd Physic at *Lyons*, with universal Reputation. He was the first of the Moderns who undertook to write an universal History of Plants; but being involved in a Multiplicity of Business, he did not live to finish it. This Task was, by *Rovillius*, a Printer at *Lyons*, committed to one *Molineus*, a learned Physician, who finish'd the Design, and publish'd it under the Title of *Historia Lugdunensis*. *Dalecampius* died in the Year 1537.

Jacobus Theodorus Tabernæmontanus is, according to *Comringius*, justly preferable to his Master *Tragus*; since, in Imitation of him, he advanced many things new concerning the Virtues of Plants; but 'tis to be lamented, that he only finish'd the first Part of his Work, since the second and third, done by another Hand, however excellent, are yet short of the Judgment and Skill of *Tabernæmontanus* himself. In his Practice, abstracting from the Theriaca and the Mithridate, he us'd very few exotic Substances, contenting himself with the Simples of his own Country. Besides his discovering some Plants formerly unknown, he has wrote very well concerning the Virtues of those which were commonly known. He was call'd *Tabernæmontanus* from the Place where he was born, which is *Bergzabern*, a Town in the Territories of the Prince of *Deuxponts*. He died at *Heidelberg* in the Year 1590.

This Author originally practis'd Pharmacy at *Kronweissenberg*.

Some of the Figures of *Tabernæmontanus*, and also of *Lobelius*, were taken by *John Gerard*, an Englishman, born at *Nantwich* in *Cheshire*. Nor did he add any Figures of his own, except sixteen, in the whole History of Plants which he publish'd in English. He had little or no Knowledge of the Languages. The greater Part of his Work is nothing but the *Pemptades* of *Dodonæus*, turned into English by one Doctor *Priest*, which *Gerard* took without any Alteration. To conceal this, he changes the Method of *Dodonæus* into that of *Lobelius*, beginning with Grasses and Graminifolious Plants. To this Translation of *Dodonæus* he has added some Plants from *Clusius*, and others from the *Adversaria* of *Pena* and *Lobelius*, having only given about fourteen of his own. He has confounded and unskilfully transpos'd the Figures of *Tabernæmontanus*. He flourish'd about the Year 1597.

Joachim Camerarius, born at *Norimberg* in the Year 1534, acquired a far greater Reputation than *Gerard*. He is by some celebrated as a Man of profound Learning, and a skilful Botanist. He was so fond of promoting Natural History and Botany, that he purchas'd of *Wolfius* the *Bibliotheca Herbaria*, and the Botanical Works which were left him by *Gesner* in his last Will. However, he is not much extoll'd by *Tournefort*, who says of him, "That if we were to judge of him from what he publish'd during his Life, we should find his Skill in Botany far inferior to the Reputation he acquired on that account." He died in the Year 1598.

With *Camerarius* we may join *Janus Antonius Saracenus*, of *Lyons*, who flourish'd about 1598. By his Care and Diligence he

he restor'd the Works of *Dioscorides* to their primitive Dignity; for he preserves the Sense of *Dioscorides*, without receding from the Purity of *Pliny's* Dictiou.

Petrus Bëthanius, of *Mans*, was a Man of incredible Industry and Application, as appears from his Works publish'd partly in the *Latin*, and partly in the *French* Languages. He has written concerning coniferous Trees and Evergreens. He has also given us Commentaries on *Dioscorides*, and a Book concerning Agriculture. He likewise designed some other Works, but Death prevented him.

Leonardus Rauwolfius was born at *Mechlin* in 1517. He travell'd thro' *Syria*, *Judea*, *Arabia*, *Mesopotamia*, *Babylon*, *Affyria*, and *Armenia*, from which Countries he brought back into *Germany*, with him, many Herbs, Shrubs, Plants, and other things of the like Nature. He wrote a Book, which he calls *Hodæporicon*, or Travels into *Syria*, *Judea*, *Arabia*, *Mesopotamia*, *Babylon*, *Affyria*, and *Armenia*, which he divided into six Parts, and which contain many curious things relating to the *Materia Medica*. He flourish'd about the Year 1583.

The World is considerably indebted to the Lucubrations of *Rembertus Dodonæus*, who was born at *Mechlin*, in *Brabant*, 1517. His History of Plants is recommended not only by the Elegance of the Figures, but also the Richness and Variety of the Matter. By his Learning he acquired such a Reputation, that he was invited to the University of *Leyden*, where he profess'd Physic with great Applause, and died in 1585. in the sixty-eighth Year of his Age.

Carolus Clusius was singularly fond of Botany. He became enamour'd with this Science when he was at *Montpelier*, where he lodg'd with the celebrated *Rondeletius*, as *Brissard* informs us. He was born at *Arras*, in the *French Netherlands*, in the Year 1526. His Reputation soon procur'd him an Invitation from the Professors of the University of *Leyden*, which having accepted, he there revis'd all his Writings, put the last Hand to them, and digested them into two Volumes; the former of which contains one thousand one hundred and thirty-three Figures of Plants; the other, besides Fruits, and exotic Animals, contains the Representations of forty-five Plants discover'd by himself. He died, much regretted, at *Leyden*, in the Year 1609. in the eighty-fourth Year of his Age.

Matthias Lobelius, of *Lille*, was far inferior to *Clusius*, and less exact in describing his Plants, as appears from his *Adversaria*, and his Observations and Illustrations of Plants, in which, where Figures are wanting, he is scarcely intelligible. In assigning the Places where Plants grow, he trusts too much to his Memory; for, as Mr. *Ray* justly observes, he takes many Plants to be the natural Product of *England*, which were never seen to grow spontaneously in it, and which, perhaps, were never seen any-where in the World. *Lobelius*, relying on the Assistance of *Petrus Pena*, a Native of *Provence* in *France*, and a Man of great Learning, publish'd a Description of the rare Plants of *Languedoc*, in a harsh and uncouth Style.

I now come to *John* and *Caspar Bauhine*, two Brothers, who have acquir'd such an uncommon Fame for their Skill in Botany, that the smallest Herb is hardly mention'd without, at the same time, mentioning the Name affix'd to it by them. They were born at *Basil*, but their Father was a Native of *France*. Notwithstanding the Learning and Industry of these two Brothers, they seem to have undertaken a Task to which they were by no means equal; for each of them propos'd to write an universal History of Plants. But as *Gesner*, in one of his Epistles to *Fuchsius*, well observes, one Man is not at all sufficient for carrying on so extensive a Design, since there are numberless Species of Plants, each of which a single Man must be an entire Stranger to, on account of the Diversity of Climates. But if different Men, in different Climates, would oblige the World with their Observations, there is a Possibility of an universal History of this kind being some time or other produc'd by a masterly Hand. Tho' it were to be wish'd, that a Work of this Nature should appear in our own Age, yet we have no Reason to expect it; because, from the Descriptions of the Plants already known, we can neither infallibly discover their Species, nor reduce them to their proper Genuses; and from this Source have arisen almost all the Errors of the universal Histories of this Nature, which have hitherto appear'd. But, to return to the *Bauhins*: No more useful Work of the kind has appear'd than the *Pinax*, nor was it possible to render it much more perfect at the time in which it was written. Among the six hundred Plants describ'd by *Caspar* in the *Prodromus Theatri Botanici*, many were receiv'd dry and imperfect from his Friends and Acquaintances. His Brother *John*, tho' he us'd the same Practice, yet gave his Descriptions far more natural and accurate. But the great Fault of these two Authors seems to consist in their having neglected to establish the Genuses of Plants, than which nothing is more requisite to such a History. *John* died at *Mont Beillard* in 1614. and *Caspar* at *Basil* in 1624. in the sixty-fourth Year of his Age.

Nor ought we, on this Occasion, to forget the *Hortus Floridus* of *Crispinus Passius*, publish'd in 1614. in which there are three hundred and twenty-five Figures accurately delineated, and divided according to the Seasons of the Year; nor the Works

of *Emanuel Sweertius*, a Native of *Sevensberg* in *Holland*; nor the *Florilegia* of *Theodorus de Bry*; nor the Description of the Herbs growing on Mount *Baldo*, publish'd by *Johannes Pona*, an Apothecary of *Verona*; nor the History of the Plants of *Canada*, publish'd by *Jacobus Cornuti*, a Physician of *Paris*.

After the *Bauhins* appear'd *John Parkinson*, a Native of *London*, and Apothecary to the King, who attempted to give an universal History of Plants in the *English* Language; for in his *Paradisus Terrestris*, publish'd in 1629. he gives the History of Flowers at great Length; and, in his *Theatrum Botanicum*, he has comprehended more Species of Plants, than were to be found in any History of Plants publish'd before his Time. For the most part, he follow'd *Caspar Bauhine*; and added several Species from *Alpinus*, *Cornuti*, and some others. But tho' he trod in the Steps of the best Authors, who had gone before him, yet, thro' Forgetfulness or Hatte, he has omitted many Things, and sometimes repeated his Descriptions of one and the same Herb.

As Kings and Princes have contributed to the Advancement of other Sciences, so have they not been wanting to the Improvement of Botany; for the Herbs of *Greece*, and the *Eastern* Countries, have been rendered as famous by the Notice which Kings have taken of them, as by their own Virtues. *Juba*, King of *Mauritania*, is as memorable for his diligent Study of Plants, as for his being cloath'd with Royalty, and swaying the Sceptre over a warlike People: And, according to *Galen*, *Mithridates* and *Attalus* were acquainted with the Virtues of almost all the Simples which resist Poison, the Qualities of which they tried upon such Criminals as were condemn'd to Death.

Nor were the *Roman* Emperors less Admirers of Botany, or less careful in advancing it; for the Botanists kept by *Cæsar* in *Arabia*, *Lybia*, *Sicily*, and *Crete*, transmitted Baskets of Flowers not only to *Cæsar* himself, but almost to all the *Roman* People. And *Evax*, a certain King of the *Arabians*, is said to have written to *Nero* concerning the Virtues of Simples.

But, to come near our own Times, *Philip* the Second, of *Spain*, as we are told by *Josephus Acosta*, sent his chief Physician, *Franciscus Hernandez*, into *America*, with a View to discover new Plants, and more accurately describe those already known.

Among the public Gardens, in which Herbs are demonstrated by Professors, that of *Padua* is the oldest. *Franciscus Bonafidius*, a Physician of *Padua*, at whose Persuasion the Design was set on Foot, first explain'd the Simples in this Garden from the Year 1533. to 1549. when, being weaken'd with Age, and losing his Sight, he resign'd his Place.

He was succeeded in this Office by *Gabriel Fallopius*, of *Modena*, whose Character, both as a Surgeon and a Botanist, is well enough known. He was succeeded by *Bernardinus Trivisanus* in 1563.

In 1561. *Melchior Guilandinus* was chosen Keeper of the *Paduan* Garden. He was born at *Cönigsberg* in *Prussia*, and made uncommon Advances in Medicinal Learning, but more especially in Botany: He took Notice of an hundred Errors in the *Herbarium* of *Matthioli*; and, after having acquired an uncommon Character for Learning, died at *Padua* in 1589.

His Place was given to *Jacobus Antonius Cortusius*, in the Year 1590. who, tho' no profess'd Physician, was yet the most skilful Botanist of the Times in which he lived. He died in 1593. without publishing any thing, except a Catalogue of the Plants in the *Paduan* Garden.

The same Year *Prosper Alpinus*, born at *Murostica*, a Town at the Foot of the *Picentian* Mountains, in the *Venetian* Territories, was chosen to read Lectures on Simples in the Schools, and shew them in the Garden. He went into *Egypt* in the Year 1580. with *Georgius Amius*, a *Venetian*, in order to take care of the Health of the *Venetians* who resided there. He was called thence to *Genoa* in 1586. by *Joannes Andreas Aureas*, Admiral of the *Spanish* Fleet, in order to prescribe for him. Thence he went to *Padua*, and enter'd upon the Explication of Simples. He was a Man of an universal Genius, and uncommon Learning. The Plants he himself had seen in *Egypt*, as also those sent him from *Crete*, and other Parts, by *Therapymus Capellus*, and *Nicolaus Contarenius*, are imperfectly described by him, and as imperfectly delineated, as appears not only from his Treatise *de Plantis Ægyptiis*, but also from his Books *de Plantis Exoticis*, publish'd by his Son *Alpinus* in 1628. *Prosper*, the Father, died at *Padua* in 1617.

The following Year *Jacobus Zabarella* was chosen to give Lectures on Simples; and *Johannes Prevotius*, a Native of *Basil* in *Switzerland*, to shew them in the Garden; but the latter was carried off by the Plague in 1630. The following Year an Offer of his Place was made to *Joannes Rhodius*, a *Dane*, but he refused it; and in 1633. it was given by the Senate to *Alpinus Alpinus*, the Son of *Prosper*, who enjoy'd it till 1637. when he died of a Consumption. Next Year he was succeeded by *Joannes Vesslingius*, of *Alinden*, whose Character, both as an Anatomist and a Botanist, is too well known not to procure him the Esteem he justly deserves. He was a Knight of the *Holy Sepulchre*, and died of a malignant Fever in 1649. He had for his Successor, in Office, *Georgius a Torre*, who is justly celebrated for his Skill in Botany. His Successor, the illustrious

Abbot *Felix Viali*, was no less a Glory to his Country, and the University of *Padua*.

Encouraged by the Example of the *Paduans*, *Cosmo* of *Medicis*, the Great Duke of *Tuscany*, formed a Garden for the same Purpose at *Pisa*; the Care of which he committed to *Andreas Cæsalpinus*. We must not here forget the *Farnesian*, the *Barberinian*, the *Ludovisian*, the *Borghesian*, the *Aldobrandinian*, and the *Estensian* Gardens in *Italy*. The *Bononian* Garden has been singularly enrich'd by *Jacobus Zannoni*, and *Lælius Triumphetti*; and that at *Rome* by the skilful Botanist *Joannes Baptista Triumphetti*.

Nor let us imagine, that in this Particular we were outdone by the celebrated Gardens of the *Hesperides*, or those of *Babylon*, or by that of *Adonis*, *Alcinous*, *Epicurus*, or *Theophrastus*; for if we take a View of the Gardens of *Holland* and *England*, we shall find them equal, if not preferable, to the most celebrated among the Antients; since those of *Leyden* and *Amsterdam* contain whatever the *Indies* and *Africa* produce: And those of *London* and *Oxford*, the last of which has of late been greatly improved by Dr. *Dillenius*, thro' the Munificence of Dr. *Sherard*, contain whatever *Jamaica* and *Virginia* afford. And those of *Hampton*, Bishop *Compton's* at *Fulham* (now neglected), and that at *Chelfea*, are furnish'd with almost whatever is to be found in the whole World. The Gardens of Mr. *Beaumont* in *Holland*, in which there is *Euphorbium*, brought from *Africa* at the Proprietors Charges, is no less famous than that of *Juba*, and will for ever be signaliz'd by the Catalogue of its Plants, publish'd by the learned *Hagelaerus*.

Nor have the Kings of *France* been wanting in this Particular; for *Francis* the First was not only an Admirer of Botany himself, but also a great Encourager of every Plan that could improve and advance it. *Henry* the Fourth also, King of *France* and *Navarre*, form'd a Garden for the Culture of rare Plants, and gave the Care of it to that skilful Botanist *Joannes Robinus*. But *Lewis* the Thirteenth, in 1626. form'd a still larger, and more noble Garden, in the Suburbs of *St. Victor's* at *Paris*, by the Persuasion of *Heroard* his chief Physician, and *Guido Brofseus* his Physician in Ordinary, and who, being created Governor of the Garden, appointed the Plants to be demonstrated by *Vespasianus Robinus*, that diligent Botanist; who, besides the Species of the *Lingua Gervina*, the Names of which are mentioned in the Catalogue of Plants contain'd in the Royal Gardens, first brought into *France* the *Filix Baccifera*, the *Adiantum Americanum*, the *Geranium Triste*, the *Origanum Fislulajum*, the *Asarum Canadense*, the *Acacia Americana*, and other curious Plants, with which *Cornuti*, a Physician of *Paris*, has adorn'd his History of Plants. At last, *Lewis* the Fourteenth gave the Charge of his Gardens to the illustrious *Guido Cressentius Fagon*; who, at his own Expence, soon enrich'd the Royal Garden with Store of curious Plants, which he cull'd, with his own Hands, in different Parts of the World: So that it is no Wonder, if the Royal Garden at *Paris* surpasses most others in the World for the immense Number of Plants it contains. Mr. *Fagon*, being call'd to the Court, put *Armandus de Mauvillain*, a Physician of *Paris*, into his Place; and in the Year 1683. *Mauvillain* was succeeded by *Tournefort*, a brief Sketch of whose Life I shall give; since he seems to have carried Botany to a higher Degree of Perfection, than any of the Authors I have hitherto mention'd.

Besides the Royal Garden at *Paris*, *France* is bless'd with another at *Montpelier*, instituted by *Henry* the Fourth, about the Year 1598. the Care of which has successively been committed to the most distinguish'd Botanists; such as *Petrus Richierius de Belleval*, *Joannes Richerius de Belleval*, *Michael Chycoineau*, *Petrus Magnol*, *Franciscus Chycoineau*, and *Nicolaus Fabricius Peireskii*, who, by a matchless Diligence, transplanted the *Myrtus latifolia flore pleno* from the woody Places between *Toulon* and *Marseilles*; the *Jasminus Indicus flavus odoratissimus* from *China*; the *Papyrus* from *Sais*, a Town of *Egypt*; the *Lisa* from *Mecca*; and some uncommon Vines from *Tunis*, *Smyrna*, *Sidon*, *Damascus*, *New France*, and other Parts.

The Gardens of *Gasto Borbonius*, Duke of *Orleans*, are also a noble and entertaining Scene for a Botanist, since it is enrich'd with Store of curious Plants. But among all the botanic Scenes the World ever saw, the most glorious and magnificent is that incredible Treasure of Plants, done in their native Colours, as large as the Life, and kept in the Repository of *Lewis* the Fourteenth. This Garden dreads neither the Cankerworm, the Locust, nor the Caterpillar; but blooms with all the Verdure of an eternal Spring, and bids a Defiance at once to the nipping Colds of the Winter, and the scorching Heats of the Summer.

LIFE of TOURNEFORT.

When we observe any Man distinguish'd by a superior Knowledge, or Skill of any Kind, it is natural for the Mind to be solicitous and inquisitive about the several Circumstances which have concurr'd to render him thus conspicuous. When, for Example, we hear of *Alexander's* Skill in all the Arts of War

and Conquest; when we view the brave and heroic Actions of *Cæsar*, *Scipio*, and *Hannibal*; when we reflect on the extensive Knowledge, the deep Researches, the accurate Deductions, and important Discoveries, of the incomparable Sir *Isaac Newton*; our Minds are indeed struck with certain Ideas of Grandeur and Surprise; but a secret Dissatisfaction is still lodged in the Breast, and the labouring Soul remains, as it were, on the Rack, till we know something more about the Men, and have discovered their Turns of Mind, and the several Steps by which they have gradually advanced to Honour, and paved their Way to immortal Glory. Now, as Mr. *Tournefort* is universally allow'd to have carried Botany to a higher Degree of Perfection than any who went before him, by enriching it with numberless Discoveries, advancing it into a Science, giving it an Air of Accuracy, which it formerly wanted, and smoothing all its Difficulties; it must, of course, be an uncommon Satisfaction to become acquainted with the Education, the Genius, the Disposition, and Studies of this celebrated Botanist.

Joseph Pitton de Tournefort, then, was born at *Aix* in *Provence*, on the Fifth of *June*, 1656. He was the Son of *Peter Pitton de Tournefort*, and *Aimare de Fagone*, the Descendant of a Family of Note in *Paris*.

Their Son *Joseph* was put to the *Jesuits* College in *Aix*, with a View to learn *Latin*, as the other Scholars did. But, as soon as he saw any Plants, the Bent of his Genius discover'd the future Botanist; for he was anxious and uneasy, till he found out their Names: He carefully remark'd their Differences, and sometimes neglected to attend his Class, in order to discover Herbs, and study Nature in the Fields, instead of the Language of the antient *Romans* in the Schools. And as it is no uncommon thing to see some People excel in an Art, by the mere Force of Genius, without the Assistance of a Master, this young Botanist had, by his own Industry, acquir'd a Knowledge of all the Plants produced about the Village where he was born.

When he enter'd upon his Philosophical Studies, he discover'd no great Relish for what was taught him. In Disquisitions of this Kind, instead of Nature, with whose Contemplation he was so highly charm'd, he found only vague and abstracted Ideas, which decoy and amuse the Mind, without enriching it with any thing that is solid and satisfactory. During this Period of his Education, he accidentally found the Philosophy of *Descartes* in his Father's Study, and soon discover'd it to be the very Thing he wanted. Tho' he could only read the Productions of this Author privately, and, as it were, by Stealth, yet he read them with Care and Accuracy; and the Father, who violently opposed so useful a Study, afforded him, without being sensible of it, the Advantages of a fine Education.

As he destin'd his young Son for the Church, he made him apply to the Study of Theology, and for that Purpose enter'd him in a Seminary. But in his Breast Botany could not endure a Rival, and the Bent of Nature was too powerful to be balanced by any Views, or overcome by any Byas.

Notwithstanding the Intentions of the Father, the Son must necessarily see Plants; and for this End he retired to prosecute his darling Study, either to a curious Garden belonging to an Apothecary of *Aix*, or to the neighbouring Fields, or to the Summits of Rocks, which had been inaccessible to others, fir'd with a less ardent Desire of Knowledge than he. Either by Stratagem or Presents he found Access to the most close and conceal'd Places, where he suspected there were Plants not to be found elsewhere; and when these Means fail'd, so undaunted was his Resolution, that he would make his Way into them in an unlawful and clandestine manner, rather than not satisfy his Curiosity; and, indeed, for an Attempt of this Kind, he once ran a Risque of being stoned to Death by the Country-people, who took him for a Robber. But what Hardships will not a Mind, actuated with an ardent and insatiable Desire of Knowledge, undergo for Satisfaction?

Mr. *Tournefort* was almost as fond of Anatomy and Chymistry as he was of Botany; and at last Physic and Medicine so engross'd his Affections, as to gain a thorough Victory over his Inclinations to Theology, which he now resolv'd to drop. In this Resolution he was encouraged by an Uncle on his Father's Side, who was a Physician of great Skill and Reputation. Soon after, the Death of his Father in the Year 1677. left him at his own Disposal, and Master of his own Inclinations.

He quickly improv'd this Revolution made in his Fortune by his Father's Death; for, in the Year 1678. he carefully ranged the Mountains of *Dauphiny* and *Savoy*, from which he return'd with a large Quantity of beautiful dry Plants, which were the Beginnings of his celebrated Collection of Herbs.

Botany is not an unactive and sedentary Science, which, like Geometry or History, may be acquir'd by a recluse and solitary Application within the narrow Precincts of a Closet; or which, like Chymistry, Anatomy, and Astronomy, demands only such Operations as may be perform'd without a great deal of Exercise, Toil, and Fatigue. The Botanist must wander thro' Mountains and Valleys, range the gloomy Forests, climb the steepest Rocks, and expose his Life on the Brinks of hideous Precipices, in Quest of Knowledge. The only Books capa-

ble of instructing us thoroughly in this Science, are, with a rich and liberal Hand, scatter'd up and down the whole Surface of our Globe. But Resolution and Patience; Industry, and Contempt of Danger, are necessary to collect and gather them. This is the Reason why so few excel in this Science: That Degree of Ardor which is capable of rendering a Man skill'd in other Branches of Literature, is by no means sufficient for forming a complete Botanist; who, besides the insurmountable Ardour of his Soul, must have an uncommon Strength of Body, and Soundness of Constitution, to bear him up under the Toils and Fatigues he must necessarily undergo. Now, Mr. *Tournefort* had a brisk laborious Turn of Mind, a robust Constitution, and a large Fund of natural Gaiety in his Temper, to support him under his painful Researches; so that both the Make of his Body, and the Turn of his Mind, joined their united Force to qualify him for a Botanist.

In the Year 1679. he went from *Aix* to *Montpelier*, where he perfected himself in Anatomy and Physic. The Garden of Plants established in that City by *Henry IV.* rich as it was, could not satisfy his unbounded Curiosity. He ransack'd all the Tracts of Ground within more than ten Leagues of *Montpelier*, and, as a Recompence for his Labour, found Plants unknown and unheard of by the Inhabitants of the Country themselves. But as he thought himself still confin'd within too narrow Bounds, he quitted *Montpelier*, and went to *Barcelona*, in the Month of *April* 1681. He proceeded as far as *St. John*, in the Mountains of *Catalonia*, where he was follow'd about from one Place to another by the Physicians and young Students of Medicine, to whom he describ'd the several Plants which occur'd; and one would have thought, that in this he resembled the antient *Gymnosophists*, who led their Disciples into the Deserts, in order to instruct them.

The *Pyrenean* Mountains, which were now not far off, could not fail tempting him to make them a Visit; and before he undertook this Expedition, he knew that in these forbidding Solitudes he should have no other Sustenance than what the most austere Hermits are accusom'd to; and that the miserable Inhabitants, who could supply him with it, were not more numerous than the Robbers, to whose Violence he was sure to be exposed. Accordingly he was several times robb'd by the *Spanish* Miquelets. In order to prevent the like Misfortunes for the future, he bethought himself of a happy Expedient; for he inclosed his Money in some Bread, which was so black and hard, that the *Spanish* Robbers, undoubtedly the greediest in the World, did not think it a Prize worth the taking. The unconquerable Force of his Inclinations surmounted all Difficulties; and the dreadful and almost inaccessible Rocks, which surrounded him on every Side, had to him transform'd themselves into a magnificent and well stor'd Library, where he pass'd the Time with Pleasure, and fully satisfied the Ardour of his Soul. One Day a ruinous Cottage, in which he had the Misfortune to lodge, fell all on a sudden; and Mr. *Tournefort*, being buried under its Ruins for two Hours, had undoubtedly perish'd, had not a seasonable Relief been afforded him. But this Accident, which of itself would have struck Terror into the Bravest, did not interrupt the Course of his painful Inquiries, nor fright him from a Scene in other respects so agreeable to him.

At last, in 1681. he return'd to *Montpelier*, and thence to *Aix*, the Place of his Nativity, where he ranged in his Repository of Herbs all the Plants he had collected about *Provence*, *Languedoc*, *Dauphiné*, and *Catalonia*, and those less known produc'd by the *Alps* and *Pyrenean* Mountains; and whatever People, whose Minds and Studies are turned another way, may think, the Pleasure of seeing such a large Number of Plants, entire, well preserved, and disposed in a beautiful Order in large Paper Books, was a sufficient Recompence for the Toil and Pains they had cost him.

The Fame of Mr. *Tournefort*'s extensive Skill in Botany had by this time reach'd the Ears of Mr. *Fagon*, who was himself a curious Botanist, and first Physician to the Queen; and, as he had receiv'd a very advantageous Character of *Tournefort* from all Quarters, he conceived a Design of alluring him to *Paris*, the general Rendezvous of all the Literati of *France*. For this Purpose he apply'd to Madam de *Venelle*, who was second Governess to the Daughters of the Royal Family, and who was intimately acquainted with Mr. *Tournefort*, and his Relations. Accordingly, this Lady, prevailing on him to come to *Paris* in 1683. presented him to Mr. *Fagon*, who, before that Year was expir'd, procured him the Place of Professor of Botany in the Royal Garden of Plants established at *Paris* by *Louis XIII.* for the Instruction of the young Students of Physic.

This Employment did not hinder him from undertaking several other Voyages; for he went back to *Spain*, and thence to *Portugal*, where he saw new Plants, but found no Botanists. When he was in *Andalusia*, a Country fertile in Silk-worms, he endeavour'd to find out the Truth of the Reports so long ago handed down to us, concerning the Amours between the Male and Female of these Insects, but he could discover no-

thing certain with regard to this Particular; and these Amours, if real, are hitherto mysterious. He travelled also into *Holland* and *England*, where he had an Opportunity of seeing Plants he had never seen before, and conversing with some of the greatest Botanists of the Age, whose Esteem and Friendship he easily gained. As a Proof of this, no other Circumstance is necessary to be mentioned, than his being solicited by friendly and importunate Letters from Mr. *Herman*, the celebrated Professor of Botany at *Leyden*, to accept of his Place, which, as he was too old and infirm, he offer'd to resign in favour of Mr. *Tournefort*. This Gentleman's Zeal for the Interest of Botany made him choose *Tournefort* for his Successor, tho' he was not only a Foreigner, but belonged to a Nation then engaged in an open War with his own Country. Mr. *Herman* promised him four thousand Livres in the Name of the States-General, and gave him Reason to think, that his Salary would be augmented, when his Merit came to be better known. But tho' the Income affixed to his Place in the Royal Garden was very moderate, yet the Love of his Country prevailed upon him to reject so fair and advantageous an Offer. He also gave his Friends an additional Reason for his Refusal of this Place, which was, that the Sciences were at least in as flourishing a State at *Paris*, as in any other Part of the World; for the native Country of a genuine and unfeign'd Virtuoso would be but a dull and uncomfortable Scene to him, if the Sciences did not thrive and prosper in it.

His Country did not prove ungrateful for the Love he had shewn her in rejecting Preferment in a distant Nation; for, in the Year 1691. the Academy of Sciences being put under the Inspection of the Abbe *Bignon*, that Gentleman exerted his Authority, two Months after he was vested with it, by taking into the Society Mr. *Tournefort*, and Mr. *Hombert*, neither of whom he was personally acquainted with, tho' he was no Stranger to the Fame and Reputation they justly acquir'd.

In 1694. Mr. *Tournefort*'s Elements of Botany, or the Method of knowing Plants, was printed at the *Louvre*, in three Octavo Volumes. This Work, tho' generally approv'd, found some very powerful Opposers; for its Author was attack'd upon some Points by Mr. *Ray*, a celebrated Botanist in *England*. And in 1697. Mr. *Tournefort* answered the Charge in a *Latin* Dissertation address'd to Mr. *Sherrard*, another *English* Gentleman, who was a skilful Botanist. The Dispute on both Sides was manag'd not only without Bitterness, but even with a certain graceful Air of Decorum and Politeness, which bespeak Candour, and a Love of Truth. It may possibly be said, that the Subject was not of sufficient Moment to ruffle their Spirits, or inflame their Passions, since the Question in Dispute was only, whether the Flowers and the Fruits of Plants were sufficient to establish their Genuses; and whether certain Plants were of one Genus, or another. But this Circumstance does not at all detract from the Merit of these two Disputants, since 'tis natural for Men, especially of Learning, to become enrag'd at each other, on account of the most arrant Trifles in the World. Mr. *Tournefort*, in a Work posterior to the Date of this Dispute, passes very high Encomiums on Mr. *Ray* and his System; an exalted Instance of a candid and generous Soul!

Mr. *Tournefort* was created Doctor of Physic, of the Faculty of *Paris*; and in 1698. he published his *History of the Plants which grow about Paris, together with an Account of their Use in Medicine*. Now we cannot readily suppose, that the Man who had made his Way to the Summits of the *Alps* and *Pyrenean* Mountains, in Quest of Plants, could be a careless Observer of those produced about *Paris*, where he had resided so long. Botany would only be an Amusement to the Mind, if it had no Relation to Medicine; but Mr. *Tournefort* has in this Work shewn the Subserviency of the former to the latter.

We may also reckon among the Works of *Tournefort*, a Book, or at least a Part of a Book, which yet was not printed by his Orders, intitled *Schola Botanica, sive Catalogus Plantarum, quas ab aliquot annis in Horto Regio Parisiensi, studiosis indigitavit Vir clarissimus Josephus Pitton de Tournefort Doctor Medicus, ut & Pauli Hermannii Paradisi Batavi Prodrromus, &c. Amstelædami, 1699.* One Mr. *Simon Wharton*, an *English* Gentleman, who had studied Botany for three Years in the Royal Garden under Mr. *Tournefort*, made this Catalogue of the Plants he had there an Opportunity of seeing.

As the Elements of Botany had met with as favourable a Reception as the Author himself could have desired, in the Year 1700. for the sake of Foreigners he gave a *Latin* Translation of it considerably enlarg'd, under the Title of *Institutiones Rei Herbariæ*, in three Quarto Volumes; the first of which contains the Names of the Plants distributed according to his own System, and the other two their Figures very accurately engraved. To this Work he has prefixed a large Preface or Introduction to Botany, containing the Principles of his own System, ingeniously and solidly establish'd, and a History of Botany and Botanists collected with uncommon Care,

Care, and written with an agreeable Spirit. We may easily suppose, that he employ'd himself with Pleasure on every Object that had the least relation to Botany, his darling Study.

But his Curiosity was not entirely confin'd to Plants and Herbs; for he was almost equally fond of all other natural Rarities, such as figur'd Stones, uncommon Marcasites, extraordinary Petrifications, and Crystallizations, and Shells of all Kinds. 'Tis true, he looked upon Stones to be Plants which vegetated, and had their respective Seeds; he was also pretty much inclin'd to extend this System to Metals, and seem'd inclin'd to transform every Object into the Nature of Vegetables, the Contemplation of which afforded him so ecstatic and superlative a Delight. He also collected the Garments, the Arms and Instruments of distant Nations, another Species of Curiosities, which, tho' not coming immediately from the Hands of Nature, may yet afford proper Occasions of philosophizing to those happy Souls who have the Art of doing it. With all these Objects he had furnished a Museum, surprisngly magnificent for a private Person, and justly famous in *Paris*. The Virtuosi valued it at forty-five or fifty thousand Livres, an Expence which would have thrown an indelible Blot on the Character of a Philosopher, had the Money been laid out for less curious and instructive Purposes. This Circumstance however proves, that Mr. *Tournefort*, considering his moderate Incomes, could not lay out a great deal of Money on other Pleasures more frivolous in themselves, tho' more eagerly pursued by the Generality of Mankind.

When we take a View of the fine Qualities of which Mr. *Tournefort* was possessed, we must readily perceive how well he was calculated for making an excellent Traveller; by which Word I do not mean the Man who runs from one Country to another, without knowing what he is about, or entertaining the least Thought of rendering himself wiser and better; but the Man who attentively views Nature in all her Variety of Shapes, with a View to become useful to his fellow Creatures, and treasure up a grateful Store of Knowledge in his own Mind; so that the faithful Accounts of the Travels of a real Philosopher may be look'd upon as sacred Archives of inestimable Value. We may therefore account it an Advantage to the Sciences, that in 1700. Mr. *Tournefort* received an Order from the King to travel into *Greece*, *Asia*, and *Africa*, not only to take a View of the Plants mention'd by the Antients, and perhaps to discover others unknown to them, but also to make Observations upon Natural History in general, upon antient and modern Geography, and even upon the Customs, the Religion, and the Commerce, of the People. He had Orders to write, as often as he had Opportunities, to Mr. *de Pontchartrain*, and to give him a Detail of his Discoveries and Adventures. Accordingly Mr. *Tournefort*, accompanied by Mr. *Gundelheimer*, a German, and an excellent Physician, and Mr. *Aubriet*, a skillful Painter, went as far as the Frontiers of *Perfia*, collecting and making Observations on Herbs. Other Travellers convey themselves by Sea from one Part to another, if they possibly can; and, when that cannot be done, they take the most beaten and patent Roads by Land. But Mr. *Tournefort* with his Associates were as little at Sea as was possible, disdain'd the common Roads, and bravely struck out new ones before untrod by Mortals. A Pleasure, blended with Gloom and Horror, rises in the Mind upon reading an Account of their Descent into the Grotto of *Antiparos*, which consists of three or four hideous Abysses, one after another. Mr. *Tournefort* had here the sensible Pleasure of beholding a new Species of Garden, in which the Plants were different Shoots of Marble, as yet young and springing, and which, according to the Circumstances with which their Formation was accompanied, must necessarily vegetate. In vain did Nature endeavour to conceal the Vegetation of Stones in these profound and inaccessible Caverns, from so bold and curious Virtuosi.

Africa was comprehended in the original Design of Mr. *Tournefort*'s Voyage; but the Plague, which rag'd in *Egypt*, determin'd him to return from *Smyrna* to *France* in 1702. This was the first Accident that put a Stop to the Execution of his vast and extensive Design: However, he return'd, loaded with the Spoils of the *East*; for, besides the numberless different Observations he had made, he brought along with him one thousand three hundred and fifty-six new Species of Plants, most of which ranged themselves, as it were, of their own Accord, under some one or other of the six hundred and seventy three Genuses he had already established; and, for all the rest, he had only twenty-five Genuses to create, without being obliged to augment the Number of Classes. A Circumstance which sufficiently proves the Advantage and Commodiousness of a System to which so many foreign and unexpected Plants were easily reducible. Of these he composed his *Corollarium Institutionum Rei Herbariae* printed in 1703.

When he return'd to *Paris*, he thought of resuming the Practice of Physic, which he had sacrificed to his *Levant* Voyage, at a time when he began to be well employed. Experience shews us, that in every thing depending on the

Taste of the Public, especially Affairs of this Nature, Delays are dangerous. The Approbation of Men is something forc'd, and soon comes to an End. Mr. *Tournefort* then found a Difficulty in getting into the Business he had left. Besides, he was obliged to go through his former Exercises in the Royal Garden, and those of the Royal College, in which he was one of the Professors of Medicine. The Functions of the Academy also took up some Part of his Time; and, besides these, he wanted to revise and polish the Relation of his last Voyage, of which he had only the simple Memoirs roughly drawn up, and intelligible only by himself. This Multiplicity of Business put him upon studying in the Night-time, a Circumstance which soon broke his Health; and, when he was in this uncomfortable State, he accidentally receiv'd a Blow on the Breast, which he thought would very soon prove mortal to him. Accordingly he languish'd for some Months, and died on the twenty-eighth of *December* 1708.

He made a last Will, in which he left his Museum of Rarities to the King, for the Use of the Literati, and his botanical Books to the Abbé *Bignon*. This second Article was no less a Proof of his Love to the Sciences than the former, considering the Character of the Abbé.

One Volume of Mr. *Tournefort*'s Travels was printed in the Author's Life-time at the *Louvre*: And the second is, since his Death, printed from his own Manuscript, which was found perfect and finished. This Work, in which the original Form of Letters address'd to Mr. *de Pontchartrain* is retain'd, contains two hundred Plates of Plants, and other Antiquities, well engraved. Besides the Branches of Knowledge, of which we have already shewn Mr. *Tournefort* to be possessed, he in this Work discovers an uncommon Degree of Learning, and a very extensive Knowledge of antient and modern History. But one Quality, when possessed in an eminent Degree, is often the Reason why we overlook others, which however, deserve our Attention. *Hist. de l'Acad. des Sciences*, A. 1708.

System of Tournefort.

The Knowledge of Plants has in all Ages and Nations been justly esteem'd an useful and important Branch of Learning. People are generally convinc'd, that Simples make up almost the Whole of Medicine; and as Nature has implanted in certain Animals an Instinct, by which they discover particular Plants to be proper Remedies for their Disorders, so she seems to have acted a still more liberal Part by Man, in furnishing him with an Instinct for Plants in general, and inspiring him with an uncommon Confidence in the Remedies prepar'd from them. But, tho' Nature has been thus bountiful in giving us so useful an Instinct, yet she has left us to use the laborious Methods of Reason, Deduction, and Experiment, in order to discover the Virtues and Uses of each particular Plant; a Task, in the Execution of which, the Reason of Man can with Difficulty come up to the Instinct of some Animals.

The Works of *Theophrastus* and *Dioscorides*, of *Pliny* and *Galen*, are sufficient Proofs, that the Antients had some Knowledge of Plants, tho' their Learning in this Particular was very superficial, defective, and imperfect, since *Dioscorides*, who applied himself to this Study in a particular manner, and acquir'd the greatest Reputation, on account of the Progress he made in it, has only mention'd about six hundred Plants, and described them in a manner so obscure and intricate, that 'tis often difficult, and sometimes impossible, to know them by his Description of them.

The Ages immediately succeeding that of *Dioscorides*, did not greatly enrich Botany; for in them all the Sciences seem to have been veil'd with Clouds of Darkness and Ignorance, which were not dispell'd till the fifteenth Century. Then indeed People began to read the Antients with great Diligence, in order to make themselves Masters of their Knowledge, which had been so long involv'd in Obscurity and Oblivion. The Botanists sought for Plants no-where else than in the Books of the *Greeks* and *Romans*; and even *Matthioli*, the most celebrated Commentator upon *Dioscorides*, was not at the Pains to compare the Plants produced by Nature, with the Descriptions his Author had given of them; but, attaching himself sacredly and inviolably to the Descriptions, form'd to himself ideal Plants, which he thought Nature must, or at least ought to have produc'd.

But, when the Sciences began again to be cultivated, Reason assumed her just Prerogative, People studied Nature as well as Books, and ventur'd to seek for Herbs in the open Fields. Upon this, Botany was enriched with new Discoveries, and became daily more extensive.

Notwithstanding this favourable Revolution, a Difficulty still remained to be surmounted. The immense Number of Plants, all differing from each other, began to prove a Grievance to Botanists; for what Memory was sufficient to retain so inconceivable a Variety of different Names, as were already in Use, or even all the new ones, which were daily becoming necessary?

The Botanists therefore bethought themselves of inventing a Method proper for the Removal of this Grievance ; but it must be own'd, that few of them apply'd themselves to this Discovery ; that those who did, were pretty late in doing it ; and that others disputed either the Possibility or Usefulness of such a Method. But 'tis no uncommon thing to see the Progress of Learning retarded by the Learned themselves.

The only Method then, which could either be thought of or desired, consisted in distributing all the known Plants under certain Genuses, so that the Knowledge of each Genus might contain, as it were, a compendious and general Account of all the Plants it included ; and that they might all, as much as the Nature of the Thing would permit, come under one Denomination common to their respective Genus, that too great a Number of particular and widely different Names might be avoided. Custom has established this Practice with regard to all the Species of the Ranunculus ; but 'tis a hard Task to extend this Plan to a great many other Plants, whose Species do not easily exhibit to View what they have in common, and such Circumstances as may serve to establish their proper Genus.

In order to preserve that Uniformity which Method requires in the System of Plants, the same Idea must prevail in the Establishment of the different Genuses ; and they must all be deduc'd from the same Principles. " A Plant, according to " Mr. *Tournefort*, is an organiz'd Body, which has always a " Root, always probably a Fruit or Seed, and almost always a " Stalk, Leaves, and Flowers." These are the five Parts ; some of which are essential to all Plants in general, whereas others belong only to some particular Species of Plants. It is evident, that the Resemblance between some of these Parts will constitute the Genuses ; but this Resemblance ought always to be between the corresponding Parts ; and our whole Business is to find out to which we ought to give the Preference. Mr. *Tournefort* determines for the Flowers and the Fruit taken in Conjunction.

Gesner and *Colonna*, two of the most learned Botanists that have hitherto appeared, were of the same Opinion ; and indeed the Intention of Nature seems to point out these two Parts as the principal and most important ; since the Whole of the Plant, and all the Apparatus of its Organs, which is greater and more magnificent than is commonly believed, seems only form'd with a View to the Production of the Seed, or, which is the same, of the Fruit, which is the Covering and Nourishment of the Seed. As for the Flower, it is only designed for a short time, to afford the growing Fruit a Nourishment more delicate, better prepared, and more agreeable to its Nature, than what it could draw from the Leaves.

All Plants whose Flowers and Fruits are of the same Figure and Disposition, are, then, of the same Genus, according to Mr. *Tournefort*'s System ; and the Roots, the Stalks, and Leaves, are not on this Occasion taken into Consideration. But when any particular Genus is afterwards to be divided into the several Species comprehended under it, we must consider the Roots, the Stalks, and Leaves ; and those Plants which either differ in all these three Parts, or only in some of them, are taken to belong to different Species.

As in all this the express Design is not exactly to follow or imitate Nature, (who, in the Production of Vegetables, seems not to have been very solicitous about a System) but only to establish an arbitrary Plan for facilitating the Knowledge of Plants, the Goodness of any Method invented for this Purpose cannot be so properly prov'd by philosophical Reasonings, as by the Advantages it brings along with it ; its Clearness and Perspicuity, and the Delight and Satisfaction that may possibly be found in it ; and upon these Principles we must judge of the Sufficiency and Perfection of Mr. *Tournefort*'s System.

It must, indeed, be own'd, his Plan is not universal, since there are Plants which have neither Flowers, Fruit, nor Seed ; at least the Fruit and Seeds are either not at all visible, without the Assistance of a Microscope, or not easily discovered even with it ; so that we are oblig'd, without perceiving them, to reason analogically for their real Existence.

Now in an Affair of this Nature, 'tis necessary there should be evident and uncontroverted Characteristics subjected to the Eye. And the Assistance of the Microscope is not in this Case admitted, and much less the most plausible and solid Hypothesis. Mr. *Tournefort* is therefore reduced to a Necessity of distributing these Plants into separate Genuses, which he regulates and fixes by their most remarkable Parts. And as these Genuses are only very few in Number, they make, if I may so speak, but a very inconsiderable Chasm in the Universality of Mr. *Tournefort*'s Plan, which, however, is more extensive and general than any other that could have been thought of.

Sometimes also, when the Flowers and Fruits taken in Conjunction are not sufficient for fixing the Genus, he calls in to his Assistance not only the Roots, or the Stalks, or the Leaves, but also, if there is a Necessity for it, some of their most obvious and sensible Properties, such as its manner of growing, or what Botanists call the *Port of a Plant* ; that is, its general

Conformation, or, what strikes the Eye immediately upon its being presented ; for since, in this Case, there is not a natural System whose Rules would be unexceptionable, we must rest contented with an artificial one, as perfect and complete as Diligence and Industry can possibly make it.

The Distribution of Plants under their Genuses renders it more easy to name them ; for they have first their generical and common Name, to which we add another, which determines their Species ; so that the very Name of each Plant becomes a Definition of it. It is true, as the Botanists, who have gone before Mr. *Tournefort*, have not had the Genuses of Plants at all in their View, or, at least, have not had an Eye to the same Genuses he has establish'd, he is, for this very Reason, often oblig'd to change the Names which they had affixed to particular Plants ; but he carefully mentions the ancient Names given them by different Botanists, provided their Characters were famous enough to deserve his Regard or Attention. And if Students in Botany would but habituate and familiarize themselves to the new Names used by Mr. *Tournefort*, they would reap the Advantage by it, of knowing more readily the Genuses and Species of Plants in a System, which seems excellently calculated for the Advancement and Improvement of Botany.

Some Plants lately discover'd, have, as it were, of their own accord, rang'd themselves under certain Genuses, already established by Mr. *Tournefort* ; and when others shall be discover'd, which, in Consequence of their Flowers and Fruits, shall call for new Genuses, we have no more to do than to establish them.

Mr. *Tournefort*, in his Institutions, has reduced the Whole to about six hundred and seventy-three Genuses, which comprehend more than eight thousand eight hundred and forty-six Species, including all Land and Sea Plants hitherto known ; so that at present we know more Genuses of Plants, than *Dioscorides* did different Plants.

But as the Memory would be very much burden'd with six hundred and seventy-three Genuses, whose different Characteristics must necessarily be known ; and as the Number of these Genuses must undoubtedly be increased in Process of Time ; Mr. *Tournefort* found but a happy Expedient for rendering this Task considerably more easy, by reducing the several Genuses to Classes ; and he is the first of all the Botanists who formed so noble and useful a Design. In order to establish his Classes, he only considered the Flowers of Plants, if they had any, as indeed most of them have. He determines all the known Figures of the Flowers of Plants, and finds them to be only fourteen in Number, which of Consequence must only produce fourteen Classes, if their Number was not augmented by those Plants which have no Flower, and by the Distinction which it was necessary to make between Herbs or Suffrutices (*Undershrubs*) and Shrubs or Trees, the Difference of whose Bulk has render'd it improper to range them under the same Class, tho' the Flower in both should be alike. But notwithstanding these Augmentations, the Whole of Mr. *Tournefort*'s Plan in his *Botanical Institutions* is comprehended under no more than twenty-two Classes.

It is then sufficient to retain in the Memory fourteen Figures of Flowers ; and when we see the Flower of a Plant which we do not know, we may find in the Institutions to what Class it properly belongs. Some Days after the Flower, the Fruit will appear, which gives the Genus ; and all the other Parts of the Plant will determine the Species. If the unknown Plant is not in Flower, we must wait till it appears, before we can pronounce certainly and infallibly.

Mr. *Tournefort* has regulated his Classes by the Flowers, rather than by the Fruits of Plants ; because when we see the Flower appear, we have but a short Time to wait before we see the Fruit, and thus determine the Genus ; whereas, when we see only the Fruit, we must wait till the ensuing Year, before we can have an Opportunity of viewing the Flower.

Upon this Plan all the Difficulties of Botany are render'd as easy to be surmounted, as the Nature of the Thing can possibly admit of ; and that prodigious Number of Plants, which not only adorn the Surface of our Globe, but also those which vegetate in the Bottom of the Ocean, are reduc'd to so narrow Bounds, as to be easily retained by the Memory, without in the least distracting the Imagination. But all this is no more than the first Institutions, and, as it were, the Out-lines of Botany ; for the Knowledge of the Virtues of Plants, which is the most important Part of the Science, is a Field of a vast and unlimited Extent ; but 'tis still more spacious and extensive, if to their real inherent Virtues we join these ascribed to them by the Whim, the Ignorance, or Caprice, of different Authors.

Mr. *Tournefort*, in his History of the Plants produc'd about *Paris*, has already given an Essay on the Manner of explaining the Virtues and Uses of Plants ; and has propos'd some new Hints founded on the most solid Principles of Physic. See ANALYSIS.

Mr. *Tournefort* thus distinguishes Plants into their proper Classes.

CLASS I. comprehends

Herbs and Undershrubs with monopetalous, campaniform Flowers.

CLASS II.

Herbs and Undershrubs with monopetalous, infundibuliform, and rotated Flowers.

CLASS III.

Herbs and Undershrubs with monopetalous, anomalous Flowers.

CLASS IV.

Herbs and Undershrubs with monopetalous, labiated Flowers.

CLASS V.

Herbs and Undershrubs with polypetalous, cruciform Flowers.

CLASS VI.

Herbs and Undershrubs with polypetalous, rosaceous Flowers.

CLASS VII.

Herbs and Undershrubs with polypetalous, rosaceous, umbellated Flowers.

CLASS VIII.

Herbs and Undershrubs with polypetalous, caryophyllated Flowers.

CLASS IX.

Herbs and Undershrubs with liliaceous Flowers.

CLASS X.

Herbs and Undershrubs with polypetalous, papilionaceous Flowers.

CLASS XI.

Herbs and Undershrubs with polypetalous, anomalous Flowers.

CLASS XII.

Herbs and Undershrubs with flosculous Flowers.

CLASS XIII.

Herbs and Undershrubs with semiflosculous Flowers.

CLASS XIV.

Herbs and Undershrubs with radiated Flowers.

CLASS XV.

Herbs and Undershrubs with apetalous, or stamineous Flowers.

CLASS XVI.

Herbs and Undershrubs which have Seeds, but no Flowers.

CLASS XVII.

Herbs and Undershrubs which have no conspicuous Flowers or Fruit.

CLASS XVIII.

Trees and Shrubs with apetalous Flowers.

CLASS XIX.

Trees and Shrubs with apetalous, amentaceous Flowers.

CLASS XX.

Trees and Shrubs with monopetalous Flowers.

CLASS XXI.

Trees and Shrubs with rosaceous Flowers.

CLASS XXII.

Trees and Shrubs with papilionaceous Flowers.

Those who are desirous of being acquainted with the farther Divisions of Plants made by *Tournefort* into Genera and Species, I must refer to his *Rei Herbariæ Institutiones*; for, to specify these, would be to transcribe the Book.

Tournefort had for an Antagonist the celebrated Mr. *John Ray*, an Englishman, born in *Black Notly*, an obscure Village of *Essex*, in the Year 1628. Though *Ray's* Father was only a Blacksmith, he sent him to *Cambridge* for the Advantages of a liberal Education. Among the several Branches of Learning taught at this University, *Ray* was principally captivated with

Phytology, by the Love of which he was prompted to range not only the Fields about *Cambridge*, but also the whole County in which it lies, in Quest of Plants, a Catalogue of which he publish'd as a happy Earnest of the future Advances he was to make in Botany. In 1661. he enter'd into Holy Orders; and in 1673. he married *Margaret*, one of the Daughters of Mr. *John Oakley*, of *Launton* in *Oxfordshire*; and betwixt 1648. and the Time of his Marriage, he undertook several Journeys through all the Parts of *England*, *Scotland*, and *Ireland*, with a View to become acquainted with the Natural History of these Countries. Nor did he confine the Scene of his Studies to these Countries alone; for he travell'd through *Holland*, *Germany*, *Italy*, and *France*, as a Companion to Mr. *Willoughby*, an English Gentleman of Note, who was very fond of Natural Knowledge. These Travels laid a Foundation for his compiling a Synopsis of the English, and another of the European Plants. But as his Travels had contributed nothing to the bettering of his private Circumstances, and only procured him the Honour of being created a Fellow of the Royal Society, after having passed four Years in *Warwickshire*, he retired along with his Wife to his native Country, where, being content with a little, an Annuity of sixty Pounds a Year left him by Mr. *Willoughby*, in 1672. being most of his Fortune, he made it his only Business to enrich Botany with his Observations, by comparing which with the Histories of *John Bauhine*, and *Carolus Clusius*, he form'd his Method, which was followed by a general History of Plants, wrote in an elegant and modest Style, and reduced to a more natural Order than any Work of the Kind before published. He was so much assisting to his Patron *Francis Willoughby*, who was then compiling a History of Birds and Fishes, that almost the whole Work may be said to be his. He also prepared for the Press a *Method of Insects*; but being spent partly by running Ulcers in his Legs, and partly by old Age, he at last died in the Year 1705.

Mr. *Ray's* System of Botany differs much from that of Mr. *Tournefort*. According to the last Edition of his *Synopsis Methodica Stirpium Britannicarum*, in which some Improvements have been made by the Editor, it consists in a Division of Plants into twenty-eight different Genera.

Under the first are contain'd the various Kinds of Fungi, which are divided into,

I. *Fungi Pileati et Lamellati*, that is, Fungi which have a Head or Cap, the inferior Substance of which is divided into Lamellæ or Plates.

II. *Fungi Pileati lamellis carentes*, Fungi which have a Cap or Head, but which are not lamellated.

III. *Fungi Pileis destituti*, Fungi which are destitute of a Cap or Head. These again are subdivided into,

1. *Fungoides*.

2. *Pezizæ*.

3. *Agarici*, Agarics.

4. *Fungi pulverulenti*, Puff-balls.

5. *Fungi subterranei*, subterraneous Fungi, such as Truffles.

The second Genus contains submarine Plants, or Plants which grow in the Sea. These are divided into,

I. *Spongiæ*, Sponges.

II. *Alcyonia*.

III. *Escharæ*.

IV. *Corallia*, Corals.

V. *Lithophyta*, Lithophytes.

VI. *Corallinæ*, Corallines; which are subdivided into,

1. *Corallinæ per Gomphosin articulatae*, Corallines articulated by Gomphosis.

2. *Corallinæ vel denticulatim divisæ, vel Capillamentis Pilifere obsitæ*, Corallines either indented, or thick set with Capillaments or Hairs.

VII. *Fucoides*.

VIII. *Fuci*. These are subdivided into,

1. *Fuci non ramosi*, the Fuci without Branches.

2. *Fuci ramosi*, the branched Fuci.

IX. *Algæ*.

Under the third Genus are comprehended the various Sorts of Mosses, divided into,

I. *Byssi*.

II. *Conservæ*, subdivided into

1. *Conservæ simplices, et æquabili Filo protensæ*, simple Conservæ, shooting out with even Threads.

2. *Conservæ geniculatæ*, geniculated or jointed Conservæ.

3. *Conservæ nodosæ*, knotted Conservæ.

III. *Ulvæ*.

IV. *Lichenoides*, subdivided into,

1. *Lichenoides caulifera*, the Stalk-bearing Lichenoides.

2. *Lichenoides cauliculis destituta*, the Lichenoides without Stalks.

V. *Mnia*, subdivided into,

1. *Mnion capitulis in eadem Planta conjunctis*, Cluster-headed Mnion.

2. *Mnion*

2. *Mnion capitulis tota planta remotis*, scatter-headed Mnion.
 VI. *Fontinales*.
 VII. *Hypna*, subdivided into,
 1. *Hypnum capitulis erectis, vel paulum saltem inclinatis*; Hypnum with upright or very little inclining Heads.
 2. *Hypnum unicum capitulis reflexis*, the single Hypnum with Heads bending backwards.
 VIII. *Polytricha*, subdivided into,
 1. *Polytrichum capsula quadrangulari*, Polytrichum with the quadrangular Seed-vessel.
 2. *Polytrichum capsula subrotunda*, Polytrichum with the roundish Seed-vessel.
 IX. *Brya*, subdivided into,
 1. *Bryon capitulis erectis*, the Bryon with upright Heads.
 2. *Bryon capitulis reflexis*, the Bryon with Heads bending backwards.
 X. *Sphagna*.
 XI. *Selagines*.
 XII. *Selaginoides*.
 XIII. *Lycopodia*.
 XIV. *Lycopodioides*.
 XV. *Lichenastra*, subdivided into,
 1. *Lichenastrum capitulis bifariam se aperientibus*, Lichenastrum with Heads that cleave in two.
 2. *Lichenastrum capitulis in quatuor segmenta florida tanquam totidem petala se aperientibus*, Lichenastrum with Heads that open into four florid Segments like Petals.
 XVI. *Lichenes*, subdivided into,
 1. *Lichen pileatus*, Lichen with a Cap.
 2. *Lichen stellatus*, starry Lichen.
 3. *Lichenes aut Lichenastra dubia duo*, two dubious sorts of Lichen or Lichenastrum.

The fourth Genus contains the capillary Plants, with such others as nearly resemble them. These are divided into those,

- I. *Foliis integris et indivisis*, such as have their Leaves whole and undivided.
 II. *Foliis laciniatis aut pinnatis*, those with jagged or pin-nated Leaves.
 III. *Herbæ capillares foliis semel divisis*, capillary Herbs, with Leaves once divided.
 IV. *Herbæ capillares foliis bis subdivisis, seu ramosis*, capil-lary Herbs, with Leaves twice subdivided or branch'd.
 V. *Herbæ capillaribus affines*, Herbs that have a near Rela-tion or Resemblance to the capillary Genus. These Ray distri-butes into,
 1. *Ophioglossum*. Adder's-tongue.
 2. *Lunaria minor*, Ger. et Park. Moonwort.
 3. *Lentes palustres, cujus tres species recenset*, three Species of Water-lentils.
 4. *Equisetum, cujus duodecim recenset species*, twelve Species of Equisetum or Horse-tail.
 5. *Charæ quinque species*, five Species of Chara.

Under the fifth Genus Ray comprehends those Herbs which bear an imperfect or stameneous, or rather an apetalous Flower. These are divided into,

- I. *Herbæ flore imperfecto seu apetalò staminibus carente*, Herbs that bear an imperfect or apetalous Flower without Stamina.
 II. *Herbæ flore apetalò, staminibus donati*, Herbs with an apetalous Flower, and furnish'd with Stamina. These are sub-divided into,
 1. *Calyce vel nullo (secundum Tournefortium) vel monophyllo et indiviso*, those with no Calyx, or Flower-cup, (according to Tournefort) or a Calyx consisting only of one undivided Leaf.
 2. *Calyce donatæ in plures lacinias diviso*, those which have the Calyx jagged in several Places. To this Division belong,
 (1.) *Flore a semine sejuncto, vel totis plantis, quæ sexu differre dicuntur, vel in eadem*, those which have their Flower separate from their Seed, and that either in distinct Plants, which sort are said to differ in Sex, or in the same Plant. (2.) *Herbæ flore imperfecto, quarum semina floribus contigua, et triquetra*, Herbs with an imperfect Flower, whose Seeds are contiguous to their Flowers, and of a triangular Figure. (3.) *Herbæ flore imper-fecto, fructui contiguo, seminibus rotundis*, Herbs with an im-perfect Flower, contiguous to the Fruit, which is of a round Figure.

The sixth Genus comprehends all such Herbs as bear a full composite Flower, and afford a lacteous or milky Juice. To this Genus belong,

- I. *Herbæ semine papposo*, Herbs with a pappous or downy Seed.
 II. *Herbæ flore planifolio, natura pleno, lactescentes semini-bus solidis, seu flore e flosculis irregularibus tantum composito*, Herbs with a full plain-leaf'd Flower, and affording a milky Juice, with solid Seeds; or Herbs whose Flower consists only of irregular Floscules.

The seventh Genus contains Herbs which are furnish'd with a composite discous Flower, a downy Seed, but yield no lacte-ous Juice.

The eighth Genus contains such Herbs as bear a composite discous Flower, with Seeds void of Down, and are call'd corym-biferous (cluster-bearing).

To these he adds the *Herbæ corymbiferis affines*, such Herbs as bear a near Resemblance to the corymbiferous; which are some Species of the *Scabiosa* and *Dipsacus*.

Under the ninth he comprehends Herbs whose Flower con-sists of fistular Floscules, or capitated Herbs.

The tenth Genus comprises Herbs bearing a perfect simple Flower, with naked solitary Seeds, or a single Seed to each Flower.

The eleventh includes umbelliferous Herbs; or such as are furnish'd with an Umbella; and these are divided into,

- I. *Umbelliferæ semine lato compresso, seu foliaceo, aut ala foliacea cincto*, umbelliferous Herbs with a broad flat Seed, or a foliaceous Seed, or one surrounded with a foliaceous Border.
 II. *Umbelliferæ semine et tumidiore et longiore*, umbelliferous Herbs with a long plump Seed.
 III. *Umbelliferæ semine brevioris*, umbelliferous Herbs with a short Seed.
 IV. *Umbelliferæ radice tuberosa*, umbelliferous Herbs with a tuberous Root.
 V. *Umbelliferæ semine striato minore*, umbelliferous Herbs with a small striated Seed.
 VI. *Umbelliferæ semine hirsuto, hispido, aut echinato*, um-belliferous Herbs, with hairy, bristly, or prickly Seed.
 VII. *Umbelliferæ foliis integris*, umbelliferous Herbs with entire Leaves.

The twelfth contains stellated Herbs, that is, such as have their Stalk surrounded, at Intervals, with Leaves imitating the Irradiation of a Star.

Under the thirteenth are comprehended the *Herbæ asperi-foliæ*, or Herbs which bear a rough Leaf.

The fourteenth comprises the verticillated *Suffrutices* (or *Undershrubs*) and Herbs.

Under the fifteenth are contain'd polyspermous (*where more than four Seeds succeed to each Flower*) Herbs with naked Seed.

The sixteenth contains bacciferous or Berry-bearing Herbs.

The seventeenth includes Pod-bearing or corniculated Herbs, that is, such as for every Flower produce a Pod.

Under the eighteenth are comprehended such Herbs as bear a single dry Fruit without a monopetalous Flower. These are divided, with respect to their Flower, into such as are furnish'd,

- I. *Flore regulari*, with a regular Flower; and these are sub-divided,
 1. *Flore integro, aut minus profunde diviso*, such as have their Flower entire, or with very shallow Divisions.
 2. *Flore tetrapetalum referente, seu tetrapetaloidis*, those with a tetrapetalous or four-leav'd Flower.
 3. *Flore pentapetaloidis*, with a pentapetalous or five-leav'd Flower. Of this Species there are (1.) *Unicapulares*, those with one Seed-vessel, or unicapular; (2.) *Bicapulares*, the bicapular, or those with two Seed-vessels; and (3.) *Multi-capsulares*, the multicapsular, or those with many Seed-vessels.
 II. *Flore irregulari*, Herbs with an irregular Flower.

The nineteenth and twentieth Genera consist of vasculiferous Herbs, with a dipetalous and tripetalous Flower.

The twenty-first contains tetrapetalous Herbs, divided into the,

- I. *Siliquosa*, those with large Pods, or *Siliquæ*.
 II. *Siliculosa*, those with small Pods, or Husks, or *Sili-culæ*. Under these he distinguishes the *Tetrapetala siliculosa monosperma*, the tetrapetalous Herbs with a small Pod, con-taining only one Seed.

The twenty-second includes vasculiferous Herbs of an ano-malous Kind, with a tetrapetalous Flower.

Under the twenty-third Genus are comprehended Herbs which bear a papilionaceous Flower, or leguminous Herbs. These are divided into,

1. Pa-

- I. *Papilionaceæ, seu leguminosæ scandentes*, papilionaceous or leguminous, scandent, or climbing Herbs.
- II. *Papilionaceæ seu leguminosæ non trifoliatæ, Claviculis carentes*, papilionaceous or leguminous Herbs, not three-leav'd, and without Tendrils.
- III. *Herbæ papilionaceæ Flore, seu leguminosæ trifoliatæ*, three-leav'd leguminous Herbs, or Herbs with a papilionaceous Flower.

The twenty-fourth Genus contains vasculiferous pentapetalous Herbs, divided into,

- I. *Pentapetalæ Foliis in Caule ex adverso binis*, pentapetalous Herbs with Leaves on the Stalk, standing opposite in Pairs.
- II. *Pentapetalæ Foliis in Caule alterno aut nullo Ordine positis*, pentapetalous Herbs, whose Leaves stand on their Stalk alternately, or in no regular Order. These are subdivided into,
 1. *Flore regulari*, those with a regular Flower.
 2. *Flore irregulari*, those with an irregular Flower.

The twenty-fifth Genus contains vasculiferous, hexapetalous, and polypetalous Herbs.

The twenty-sixth comprises such Herbs as have a bulbous Root, and such as are akin to bulbous Herbs.

Under the twenty-seventh we have the culmiferous Grass-leav'd Herbs with an imperfect Flower. Under this Genus are comprehended,

- I. *Culmiferæ Grano majore, Frumentacea et Cerealia dictæ*, culmiferous Herbs with a large Grain, such as the frumentaceous, or those Kinds of which Bread is made.
- II. *Culmiferæ Grano minore, Gramina dictæ*, culmiferous Herbs with a small Grain, call'd Grasses. These are subdivided into,
 1. *Gramina spicata*, Grasses bearing a Spike or Ear.
 2. *Gramina paniculata*, paniculated Grasses. And these are (1.) such as have a simple Locusta, or Husk; and (2.) such as have a squamous one. These again are either *muticæ*, such as have their Locusta without a Beard; or *aristatæ*, such as have it bearded.

The twenty-eighth and last Genus contains the graminifolious or Grass leav'd Herbs, with an imperfect or staminate Flower. This may be divided into,

- I. *Gramen Cyperoides polystachion*, the Cyperoidal Grass with many Ears.
- II. *Gramina Cyperoides cum Spicis in summo caule, quem spica paleacea non terminat*, cyperoidal Grasses with Spikes on the Top of the Stalk, which does not terminate in a paleaceous Spike.
- III. *Cyperis Botanicis dicti*, the Grasses call'd by Botanists *Cyperis*.
- IV. *Scirpus*, the Rush, subdivided into,
 1. *Scirpi nudis*, naked Rushes.
 2. *Scirpi foliosis*, leafy Rushes.
- V. *Juncus*, the Juncus, subdivided into,
 1. *Juncus aphyllus*, the Juncus without Leaves.
 2. *Juncus foliosus*, the leafy Juncus, with their several Species.

To these he subjoins the *Graminifoliosæ non culmiferæ singulares, et sui Generis*, the Grass-leav'd Herbs, which are not culmiferous, but are singular, and belong to no Genus.

To make this Method more complete, the Trees and Shrubs are divided into Genera, with respect to the Difference of their Flowers, in the following manner.

The first Genus comprehends such Trees and Shrubs as have their Flowers remote or separated from their Fruit. Of these there are the following Species.

- I. *Nucifera*, the nuciferous, or Nut-bearing.
- II. *Conifera*, the coniferous, or Cone-bearing.
- III. *Baccifera*, the bacciferous, or Berry-bearing.
- IV. *Lanigera*, the lanigerous, or such as produce a woolly Substance.
- V. *Vasculis foliaceis*, those with foliaceous or leafy Vessels.

The second contains those Trees and Shrubs which have their Fruit contiguous to a petaloidal Flower.

These are divided into,

- I. *Arbores et Frutices Flore summo Fructui insidente*, Trees and Shrubs which have their Flower resting on the Top of their Fruit; such are the pomiferous and bacciferous Species, which produce a great or small moist umbilicated Fruit.
- II. *Arbores quarum Flos Basi Fructus, seu imo Fructui coheret, et primo Fructu per Maturitatem humido*, Trees whose Flower adheres to the Base or Bottom of the Fruit, which, as it ripens, turns to a humid Substance. These are subdivided into,

1. *Prunifera*, the pruniferous, or Plum-bearing.
2. *Baccifera*, the bacciferous, or Berry-bearing.
- III. *Arbores Flore imo Fructui adnascente, Fructu per Maturitatem sicco*, Trees whose Flower grows to the Bottom of the Fruit, which grows dry as it ripens.

There are some very considerable Botanists, who, tho' they have been an Honour to their Country, and a Blessing to Mankind, are, however, not mention'd in the foregoing Account. Among these, the first who occurs is *Carolus Plumier*. He was born at *Marseilles* in 1646. and was contemporary with *Tournefort*. Tho' he was descended of an obscure Family, yet he soon became conspicuous, not only on account of his Mechanical and Botanical Observations, but also on account of the annexed Figures, delineated and engraved by his own Hand. Besides his happy Turn for Mathematics and Mechanics, he was an industrious and skilful Botanist. He presented his first Labours of this kind to *Lewis* the Fourteenth, who, as a Reward for his growing Merit, gave him at once the Title and the Salary of King's Botanist. Besides his Descriptions of *American* Plants, his History of Ferns, and his establishing some new Genuses, there are several other Works, wrote with his own Hand, which are preserved in the Libraries of the Royal Academy, and that belonging to the Monastery of the *Minims* in *Paris*. These Works contain not only the Figures and Descriptions of about nine hundred *American* Plants, but also the History of a great Variety of Birds, Fishes, Shells, and Insects, which he had seen, and whose Figures he had drawn in *America*. Whilst he intended a Voyage to *Peru*, in order to discover something more concerning the famous *Peruvian* Bark, he was seized with a Pleurisy, of which he died in the sixtieth Year of his Age, in 1704.

The Merit of *Samuel Dood* may be judg'd of by the Specimens of his Botanical Observations, given in *Ray's* History of Plants. He was born in the County of *Stafford*, and, by his Diligence, Industry, and Sagacity, soon distinguish'd himself among the Apothecaries of *London*; by whom, on account of his Skill in Natural History and Botany, he was made Master and Protector of their Garden at *Chelfea*. *Ray* ingenuously confesses, that he borrow'd a great many things from him. He was a diligent Inquirer into the Natures of Mosses, capillary Herbs, Fucuses, and Corals; so that Botany and Natural History sustain'd a very considerable Loss by his Death in 1706.

Of those celebrated Botanists who have died since the Days of *Tournefort*, *Petrus Hotto* is the first. He was born at *Amsterdam* in 1648. After he had taken the Degree of Doctor of Physic in the University of *Leyden*, he declin'd Practice, that he might pursue the Study of Botany to the greater Advantage. With this View he travell'd into *Denmark*, in order to make Observations on the Plants of that Kingdom. But he was recall'd thence by the Magistrates of *Leyden*, in order to read Lectures for *Herman*, who was appointed to go to the *Indies* to make Observations on exotic Plants; and he had the Promise of this Professor's Place, if he should happen to die in his Voyage. During *Herman's* Absence he taught with great Applause. *Herman*, upon his Return, resum'd his Place; but, after his Death, *Hotto* succeeded him in 1695.

Besides his elegant Oration *de Historia & Fatis Botanices*, deliver'd that same Year, he endeavour'd a Reconciliation of the Methods of *Tournefort* and *Herman*; but his Death, in 1709. put a fatal Stop to the Execution of so useful a Design.

Among all the Botanists produc'd by the present Age, none is more justly celebrated than *Dr. Sherard*, who had his Education begun at *Merchant-taylor's School*, and afterwards became a Fellow of *St. John's College, Oxford*. His Learning, together with his other Qualifications, procur'd him an Opportunity of travelling with two Noblemen at different times; during which he visited many Countries of *Europe*, in which he was a diligent Observer of the Plants produc'd by each. Upon his Return to his native Country, he was created Consul of *Smyrna*, which gave him an Opportunity of viewing the *Asiatic* Plants. At his Death he left three thousand Pounds to the Physic-garden at *Oxford*. He was much admir'd by *Boerhaave*, who also makes honourable Mention of his Brother *James Sherard*, as an accurate and curious Botanist.

Mr. Isaac Rand, *Dr. Martyn*, *Dr. Dillenius*, and *Mr. Miller*, are so fam'd for their Knowledge of Botanical Subjects, that, to name them, is to praise them.

It would be doing a Piece of Injustice, not to make honourable Mention of the following Gentlemen, Messieurs *Buddle*, *Larson*, *Lbwyd*, *Newton*, *Stonestreet*, *Dubois*, *Dale*, *Munningham*, and *Richardson*.

I must add, that *Sir Hans Sloane*, by his Skill, Industry, and Munificence, has greatly contributed to the Perfection of Botany, and laid a Foundation for its farther Improvement.

The last Author I shall mention, who has lent his friendly Aid to the Improvement of Botany, is the justly celebrated *Boerhaave*; and, indeed, by his Performances of this kind, he has, at once, oblig'd the World, and prov'd the Force and Extent of his own Genius; for, as his Aphorisms and Institutions discover

discover the sagacious and discerning Physician, and his Chymistry the skilful Natural Philosopher and Chymist; so his Botanical Productions pronounce him an accurate, diligent, and penetrating Botanist. Tho', by the surprising Degrees of Perfection, at which this Author arriv'd in other Branches of Learning, one would be tempted to suspect, that he had too small a Portion of Time left for making any considerable Advancements in the Knowledge of Plants; yet, when his judicious Divisions and Distributions of them come to be perus'd, we are inclin'd to think he had employ'd the Whole of his Life in the Study of Botany.

In 1710. the Year after he was made Professor of Botany, he publish'd, in one *Octavo* Volume, an Index of the Plants with which the Physic-garden at *Leyden* was then stor'd. This Work, tho' perhaps the most perfect of its kind the World had ever seen, began by degrees to be look'd upon as very imperfect in its Author's Eyes; for his Impartiality, join'd with the superior Strength of his Judgment, enabled him to discover Blemishes in his own Productions, which escap'd the Eyes of all, except the happy Few, who are bless'd with a discerning Judgment. He had us'd new Names to old Plants; and, as he became sensible, that no Circumstance had a more evident Tendency to create Confusion and Disorder in Botany, he was resolv'd to rectify this Mistake, which was, perhaps, adverted to by few except himself. Accordingly, in 1720. he presented the World with a second Index, in two *Quarto* Volumes, to which he has prefix'd a new and large Preface, with a Plan, and short History, of the Physic-garden. In the Preface to this Work, he affords us an Instance of that disinterested Candour, and noble Humility of Soul, which is, at once, the peculiar Glory of human Nature, and the distinguishing Badge of every Mind that is truly great. It is customary for Men to be blind to the Imperfections of their mental, as well as of their natural Offspring: Indulgent Fathers, and tender Mothers, are not fonder of their vicious, deform'd, and ill-dispos'd Children, than some Authors are of their own Productions, however lame, monstrous, incoherent, and absurd. How far the incomparable *Boerhaave* was remov'd from this Weakness, so destructive of the true Interests of Truth, the Reader may judge from the following Translation of his own Words in the above-mention'd Preface.

“ In this Edition I have endeavour'd to avoid the Innovation of Names, as much as the Nature of the Thing would possibly allow. In my former Index I transgressed against this fundamental Law, by imposing new Names upon Plants, which were long ago much better known by other Denominations. I ingenuously confess my Error, and am heartily sorry for my Fault. The Hurry in which the Work was compil'd, and my Mind not being employ'd on Botanical Subjects for a great while before, laid a fatal Foundation for my Error, which I now endeavour to amend; and the few Transgressions of this kind, which are found in the present Performance, will, I hope, be pardon'd by such as have any tolerable Share of Goodness, or a sympathizing Sense of the Frailties to which Mankind is unavoidably subjected. But I am of Opinion, that nothing more fatal can befall Botany, than that every Author should, without any Necessity, and with no other View than the Gratification of his own Caprice, impose new Names on Plants which were before accurately describ'd, and properly denominated.”

Nothing paints a truly great Man in Colours that strike the Eyes of the discerning Mind with more Energy, and captivating Force, than a Confession of his Weakness from his own Mouth. He did not use the low and disingenuous Arts of Detraction and Obloquy, in order to establish his own Fame as a Botanist; for his History of his Predecessors is one continu'd Strain of Praise and Approbation. Men who want Merit themselves, are only fond of stripping others of theirs, and raising a short-liv'd Character upon the Ruins of real and uncontested Worth.

His Industry, and conscientious Discharge of the Office with which he was entrusted, appears from this Circumstance, that, in the Space of ten Years, the Time between the Publication of his first and second Indexes, he had enrich'd the Physic-garden with double the Number of Plants it formerly contain'd. But this was not all; he discover'd a fine Taste by the happy Choice he made of them, and the beautiful and regular Order into which he dispos'd them: And, as they were rang'd with a refin'd Taste, so they were cultivated with the nicest Judgment; for it must not be forgot, that all this Variety of delicate and tender Plants, under *Boerhaave's* Management, acquir'd a far greater Strength and Vigour, than the same Plants generally do under the Care and Conduct of other Botanists.

In the Conduct of his Botanical Works, he has discover'd a Mind open to Truth, and entirely free from that base and servile Attachment to Names and Authority, which has, in all Ages, prov'd the Bane of Learning and good Sense. He had a Judgment of his own, and bravely dar'd to use it. He follow'd Truth where-ever she led him, and did not, like some of his Predecessors, blindly follow the Methods of *Ray* and *Morison*, but selected, from a Variety of Authors, such Materials as were proper for forming a better and less exceptionable System; and

where he found these defective, he added what he thought proper of his own. *Linnaeus*, a competent Judge of these Matters, affirms that he has form'd his *Genera Plantarum* in the most judicious manner; since he was the first of all the Botanists who call'd in to his Assistance all the Parts of Plants which concur to Fruetification, and gave so accurate and minute a Description of them, as to render the Arts of Sculpture and Colouring almost entirely useless. *John Bauhine*, *Morison*, *Tournefort*, and some others, tho' justly celebrated for enlarging the Catalogue of Plants, and classing them more judiciously than their Predecessors had done, yet added a fresh Load to Botany, before too burdensome to the Memory, by fixing new-coin'd Names to such Plants as were accurately enough described under old ones full as proper. This Misfortune made *Boerhaave* wait impatiently for the Publication of the *Pinax*, expected from Consul *Sherard*; who, in that Work, design'd to fix the various Names given to each Plant, in a manner so correct and accurate, that there should not remain the least Motive or Temptation, for the future, to forge any new Appellations. By this means he proposed to fix a Standard in this Part of Botany, and render it immutable and invariable for ever after. But I don't find this has ever been publish'd.

Tho' it is certain the individual Species of Plants never vary essentially from themselves, yet it is equally obvious, that, by Difference of Soil, Situation, and Culture, they may assume such a Variety of external Appearances as to deceive any one, who does not, with *Boerhaave*, distinguish them by the Parts of Fruetification, which never alter. This seems to be the peculiar Excellency of *Boerhaave's* Method, above all others the World has hitherto seen. Since Botanists, after comparing Plants thus settled with the Descriptions of Authors, have collected all the various Names given by different Authors to each Plant; and since *Vaillant*, and some others, have furnish'd us with exact Descriptions and Delineations of them, according to what they really are, in the several Places where they are naturally produced; and by preserving them complete and entire, by means of proper Leaves of Paper, form'd to perfect an *Hortus Siccus*, they have been able to fix the precise Number of Plants hitherto known, and to secure the distinct and discriminate Knowledge of them to the latest Posterity: This, amongst others, is one Advantage, which we originally owe to the Perfection and Extent of Mr. *Boerhaave's* System. The Publication of his Index, abstracting from its own Perfection, produced a very happy Effect, both with regard to himself, and other Botanists, who before were unwilling to communicate their *Duplicates*, without an Assurance, that they should, in return, have their Deficiencies supplied: But when his Index appear'd, they perceived he was possess'd of what they wanted; a Circumstance, from which he was certain of obtaining his Requests from them on the Foot of Exchange. Thus the same Plant came under the Inspection and Management of different Botanists, by which means each had an Opportunity of making his own Observations on it; a Circumstance which tends more to the Advancement of Botany, than perhaps every one is aware of. To his Skill in Botany he added the most extensive and distinguish'd Gratitude; for in an Oration deliver'd in 1731. on resigning his Professorship, he immortalizes the Names of his Correspondents; and, in the warmest Strains of Gratitude, recites the Friendships and Favours of the *Sherards*, Sir *Hans Sloane*, Baron *Baffand*, and about forty more of different Nations.

Besides, his Botanical Knowledge was not of the barren Kind; for it furnish'd him with new Subjects for Chymical Operations, and new Medicines for Use. About seventeen Years after the Publication of his Index, he, in his Lectures, gave a full Description of the Plants, together with an Account of their Virtues; but he never published these, which is much to be lamented.

I shall now proceed to specify some of the modern Discoveries, relative to the Structure and Vegetation of Plants.

The STRUCTURE of VEGETABLES.

In treating this curious Subject, we shall pursue that Method, which, as Dr. *Grew* justly observes, is follow'd by Nature herself, in her continued Series of Vegetations, proceeding from the Seed sown to the Formation of the Root, Trunk, Branch, Leaf, Flower, Fruit, and, last of all, to the Seed to be sown again; to every one of which we shall speak in their particular Order.

The Seed of a Plant, then, is that Part by which the Plant is propagated, and consists of an Embryo, with its Coat or Cover; which Embryo contains the whole Plant in Miniature, and is therefore call'd the Gem or Bud, and is rooted in the Placenta or Cotyledon; which last serves the same Purposes in Vegetables, as the Secundines, or the Chorion and Amnion, in Animals.

But tho' the Constitution of the Seed is essentially the same in all Vegetables, yet, as some are more convenient for Observation than others, we shall chuse to instance the great Garden-bean; which, if we dissect, we shall find cloath'd with a double Vest or Coat. These, while the Bean is green, are separable, and easily distinguish'd; but, when it is dry, cleave so close together,

together, that the Eye, not before instructed, will judge them but one; the inner Coat (which is of the most rare Contexture) so far shrinking up as to seem only the Roughness of the outer.

At the thick End of the Bean, in the outer Coat, there is a very small Foramen or Hole, which, in Dissection, is found to terminate against the Point of that Part call'd the Radicle, of which we shall speak hereafter; and is of that Capacity as to admit a small Wyre, and is most conspicuous in a green Bean.

This Foramen may be observed, not only in the great Garden-bean, but also in the other Kinds; in the *French* Bean very plainly, in Pease, Lupines, Vetches, Lentiles, and other Pulse; and in many Seeds not reckon'd of this Kindred, as in that of Fenugreek, Coats-rue, and others; in many of which it is so very small, as scarcely, without the Help of Glasses, to be discover'd; and in some not without cutting off Part of the Seed, which otherwise would intercept the Sight.

All Seeds which have thick or hard Coats, have the same likewise perforated in this or some other manner; and accordingly, altho' the Coats of such Seeds as are lodged in Shells or Stones, being thin, are not visibly perforated; yet the Stones and Shells themselves always are.

And for the sake of this Aperture it is, that Acorns, Nuts, Beans, Cucumbers, and most other Seeds, are, in their Formation, so placed, that the Radicle still stands next it, that, upon Vegetation, it may have a free and ready Passage into the Mould.

That this Foramen exists, even in old setting Beans, likewise appears, upon their being soak'd for some time in Water; for then taking them out, and crushing them a little, many small Bubbles will alternately arise, and break upon them. And, indeed, a free Access of the Air is as absolutely necessary to maintain the Principle of Vegetation in the dry Seed, (tho' in a less Degree) as to nourish the Plant when germinated; which is well known to the Seedsmen, who find by Experience, that all sorts of Seeds are best preserved, if kept in the Pods or Husks wherein they grew, and not shut up too close from the Air.

The outer Coats of the Bean, then, being stripp'd off, the proper Seed shews itself, which, as we before observed, consists of a main Body, Cover, or Cotyledon, and an Embryo, or young Plant; which last may also be distinguish'd into two Parts, the Radicle, and the Plume.

Now the main Body is not one entire Piece, but is always divided lengthwise into two Halves or Lobes, which are both join'd together at the Basis of the Bean. These Lobes, in dry Beans, are but difficultly separated or observed; but in young ones, especially boil'd, they easily slip asunder.

There are some few Seeds, indeed, which are not divided into two Lobes, but more; as that of Cress's, which have six; and some are not at all divided, but entire, as Corn: Excepting which few, all other Seeds, even the smallest, are divided, like the Bean, into just two Lobes. But in all Seeds whatsoever, they perform the same Office to the infant Plant, as the Membranes, (call'd *Chorion* and *Amnion* by Anatomists) *Placenta* or *Cotyledons*, call'd the After-birth, do to the Embryos of Animals. When the Plant begins to take Root, and receives some Nourishment from the Earth, these Lobe, in all except those of the Pulse kind, become the *Folia Seminalia*, or Seed-leaves, which still serve to protect the young Plant from Injuries; but, as soon as it has taken sufficient Root in the Earth to shift for itself, the Plant may be said to be born; and then these Seed-leaves, being of no farther Use, wither and drop off, like the aforesaid Membranes in Animals.

Without these Lobes, and somewhat above the thicker End of the Bean, stands the Radicle, which is so call'd, because, upon the Vegetation of the Seed, it becomes the Root of the Plant. Now this is immediately visible, upon divesting the Bean of its Coats, and is of a whiter Colour, and more glossy, than the main Body, especially in a young Bean.

The next Part to be consider'd is the Plume, which lies inclosed in two small Cavities, form'd in the Lobes of the Bean for its Reception. Its Colour comes near to that of the Radicle, to the Basis of which it is fix'd; tho' it has quite a contrary Germination, that is, towards the thin End of the Bean; and this is that Part, which, in Process of Time, becomes the Body or Trunk of the Vegetable.

It is not, like the Radicle, one entire Body, but is divided at its loose End into divers Pieces, all close set together, like Feathers, in a Bunch, whence it derives its Name; and these are so very close, that only two or three of the outermost are, at first, visible; but, upon a nice and curious Separation, others still more inward may be discover'd; all which are so many true Leaves, already torn'd, tho' not display'd, intended for the said Trunk, and folded up with it, as afterwards appears upon the sprouting of the Bean. In a *French* Bean the two outermost of these are very fair and conspicuous; and in a great Garden-bean two very small Plumes frequently, if not always, stand one on each Side the great one just now described, from which they differ in nothing but the Size. In many Seeds, indeed, nothing but the Trunk is visible, without any Leaves; notwithstanding

which these last never fail to exert themselves, after the Seed has lain some time in the Ground. The Seed, thus compos'd, is inclosed within two common Membranes, the outer thin, and the inner thicker; and one proper, which we shall call the Cuticle, which covers both the Outside and Inside of the Lobes, as also the Radicle and Plume.

But, before we proceed any farther in the Description of the different Parts of Plants, it will be highly worth while to take Notice of the great Analogy there is betwixt Plants and Animals, in as few Words as may be.

First, then, as a Mixture of Male and Female is necessary in Animals towards Generation, so it is in Plants, as appears, beyond all manner of Contradiction, by a great Number of Experiments.

Again, as the first perceivable Effect of the Mixture of Sexes, in Animals, is the Production of an Egg, which is deposited in the Matrix or Womb of the Female Parent; or else laid in a Nest, to be hatch'd by the Heat of the Mother's Body; or perhaps conceal'd by the Parent in some proper Place, in order to be brought to Perfection by the Heat of the Sun: It is just the same in Plants, where the first Effect of the Mixture of Sexes is the Production of a Seed, which may very properly be call'd the Egg of the Plant; which, when deposited in the Earth, as a proper Matrix or Womb, is, in its Season, as it were, hatch'd by the Heat of the Sun, and becomes a Plant of the same Species as its Parent.

The Embryo of Animals, whilst in the Egg, is inclosed in Membranes, and is nourish'd by a Juice contain'd in the Egg, which it receives by means of a Navel-string, or something that performs the Office thereof; being first collected by a Congeries or great Number of Vessels, which is call'd the Placenta, or, in some Animals, the Cotyledons. In the Seeds of Plants, also, the Embryo is contain'd in Membranes, and the infant Plant is for some time nourish'd by Vessels analogous to the Navel-string, and Placenta, or Cotyledons, which convey to the Embryo proper Nourishment.

When the Animal is born, or hatch'd, the Way of its Nourishment is then very different from what it was in the Egg; for then there are a great Number of small Vessels, call'd by Anatomists Lacteals, which take up, from the Intestines, the finest Parts of the Aliment or Food which the Animal eats, and convey it to the Blood-vessels, where it circulates with the rest of the Juices, till it is again discharged from the Animal by means of Perspiration, Urine, or some other Evacuation. In Plants, the Fibres of the Root perform the Office of the Lacteals, and convey Nourishment to the Plant; which, after having circulated in its Vessels, is again thrown off by Perspiration. And, as curious Observers have found, that a Man in Health perspires about thirty-one Ounces in twenty-four Hours; so Dr. *Hales* has demonstrated by Experiment, that a Sun-flower perspires twenty-two Ounces in the same Time; not that the Sun-flower is the only Plant that perspires, nor a Man the only Animal; but all Plants and Animals throw off vast Quantities of their Juices by Perspiration, some more, and some less, when in Health.

Is the Air necessary to the Support of Animals? It is not less so to the Life of Vegetables; for all Plants whatever will soon wither and die, when deprived of a free Intercourse with the external Air.

Are Animals kept alive, nourish'd, and supported, by the Circulation of the Blood? The Circulation of the Sap is equally necessary to Vegetables, which cannot subsist without it.

And here we cannot sufficiently admire the Wisdom of the great CREATOR, in this surprising Harmony between Plants and Animals, than which we need no other Proof, *that God is a God of Order*. And it may be no ill Lesson of Humility to us, that as even the very Worm, we tread under our Feet, can say to Man, who is so wonderfully and fearfully made, *I am thy Sister*; so likewise the basest and most noisome Weed is, as well as ourselves, a Link of that golden Chain, by which the Poets feign the World to be fasten'd to the Throne of *Jupiter*.

The Lobes, as we have already observed, answer the same Purposes as the Membranes in Animal Fœtuses; for between these the tender Embryo is warmly and safely lodged, and by that means secured from all external Injuries, which it might otherwise sustain from the Mould, or the Access of noxious Colds; and this is continued till the little Plant is somewhat inur'd to its new Element, and its Root tolerably fix'd in the Ground, when these two Lobes become the *Folia Seminalia*, or Seed-leaves, whose Office it is still to protect the tender Plant, till the Plume is become sufficiently strong and expanded.

Nor is this the only End they answer; for while they adhere to the little Embryo, they not only guard and defend it in the above-mention'd manner, but likewise prepare and purify the cruder Juice the Plant is to receive from the Earth, by straining it thro' their own Body, and assimilating it to their own Nature; which Nourishment the little Plant receives, and draws to itself by a great Number of small branching Vessels, which it sends into the Body of the Placenta, and which answer the same

same Purposes as the *Funes Umbilicales*, or Navel-strings, in Animals.

Moreover, we find that every Placenta or Cotyledon of a Seed abounds for the most part with a Balsam, disposed in proper Cells, which is oily and tenacious, and not only serves to defend the Embryo from any extraneous Moisture, but, by its Viscidity, to entangle and retain that fine, pure, volatile Spirit, which is the ultimate Production of the Plant; and which is call'd the *Spiritus Rector*, or *Prevailing Spirit*. This Oil, it is true, is never observed to enter into the Vessels of the Embryo, which are too fine to admit so thick a Fluid; but the Spirit, being quicken'd by an active Power, may, probably breathe that vital Principle into the Juices which nourish the Embryo, which stamps upon it the Character which distinguishes the Family; after which every thing is changed into the Nature of that particular Plant.

But, before we dismiss the Seed, it may not be improper to observe, that every Plant, even the least and most inconsiderable, arises from a Seed, nor is produced any other way; for, tho' the Earth nourishes every Individual, yet it cannot form an organical Body; and indeed, if it could, it must be endow'd with all the Omnipotence of the Creator.

Having thus taken a View of the Seed, we come next to the Root; or that Part of a Plant, by which it adheres to the Earth, and receives its Nourishment; but, before we proceed in our Anatomy, it may not be amiss to observe, that the Roots of Plants being of various Forms, are accordingly distinguished by Botanists. See the Explications of the different Roots under this Article.

But notwithstanding these Varieties, in regard to Matter of Form, the essential Parts of the Root seem to be the same in all; and are,

1. The Bark.
2. The Wood, or lignous Body; or, in the more herbaceous Plants, something equivalent to it.
3. The Medulla, or Pith.

The Bark, the Wood, and the Pith of the Root, seem to be nothing different from those of the Trunk and Branches. Its Use is to receive the nutritious Juices of the Earth into its Vessels, which are thence convey'd into the Trunk by corresponding Vessels therein; or, according to the Opinion of some, the Vessels of the Trunk are only a Continuation of the Vessels of the Root. Therefore what we are going to observe of the Bark, Wood, and Pith, is to be understood both of those of the Trunk and Branches, as well as those of the Root.

The Bark may be divided into the outward Skin, or Cuticle; and the inner or cortical Substance.

The outward Skin, or Cuticle, seems to derive its Origin from the inner or cortical Substance, and to be nothing more than the old Bark dried and shrivel'd up, being supplanted yearly by a new one, after the same manner as a Snake casts her Skin.

It is composed of little Bladders, or Vesicles, horizontally placed, so as to form a Ring; among which are also intermix'd, more or less, several parallel woody Fibres, or Sap-vessels.

The inner Substance consists, 1. of several Enfoldments of woody Fibres, interwoven in the manner of a Net, and wrapping over each other like the Coats of an Onion. 2. Of a great many little Bladders, or Vesicles, sometimes of an oval, and sometimes an angular Figure, which fill up the Spots or Spaces between the said Fibres; and are placed, as it were, in Lines horizontally towards the Wood. And, 3. of its own peculiar Vessels, which contain the proper and specific Juice of the Plant.

The woody Fibres are certain tubular Bodies, hollow for the Reception of their proper Fluids; and are composed of a great many smaller concave Fibres, disposed in a quadrangular Figure, and communicating one with another. These Vessels do not run in right Lines or Parallels; but, for the most part, are gather'd together, as it were, in little Bundles; which, when extended, or separated from each other, form a kind of Net, or reticular Coat, with which they embrace the Wood. Dr. Grew calls them the lymphatic Duets, from their containing an aqueous, limpid, and almost insipid Fluid.

The Bladders, or Vesicles, which are full of a Liquor they receive from the woody Fibres, are, for the most part, placed horizontally in right Lines, which run from the Cuticle towards the Wood, and are call'd by Dr. Grew the Parenchyma of the Bark, as being analogous to the Parenchyma in the Bowels of Animals. Into these transverse Vesicles the ascending Fluid, which may be call'd the Chyle of the Tree, is deposited; where having remain'd for some time, and being intimately mix'd with the former Juice, it is at length exalted into the Nature of an Aliment, and from thence distributed to the other Parts of the Plant. And as there is great Plenty of this kind of Fluid in these little Bladders, or Vesicles, it is no Wonder, that the Bark of a Tree should supply the Fire with a stronger and more abundant Pabulum, than any other Part.

The Contents of the Sap-vessels are different in various Plants,

as a Resin in the Fir, Milk in Spurge; &c. This Juice Mr. Ray chuses to call the Quintessence of the Plant, as containing not only its Smell and Taste, but all its Virtues.

The Wood consists of the same Parts, and those connected in the same manner as the Bark, viz. 1. Of certain hollow woody Fibres, gather'd together, as it were, in little Bundles, and interwove in the manner of a Net. 2. Of little Bladders, which fill up the Spaces between the said Fibres. 3. Of the Vessels containing the specific Juice of the Plant. And, 4. of certain Vessels, which we shall call Air-vessels, and which answer to the Lungs in Animals.

The woody Fibres are exactly the same as in the Bark, only there is this Difference between them, that, upon cutting the Trunk transversely, the Sap will voluntarily flow from those in the Bark, but seldom or never from these. They compose far the greatest Part of the Wood, and their Use is for the Strength and Compactness of it. *Malpighi* will have them communicate one with another, like the Branches of the Veins of Animals.

The little Bladders are rank'd in Lines, between the Fibres and Vessels, from the Bark to the Pith; tho' they do not all extend quite so far, being sometimes interrupted by little Circles, which rise towards the innermost Parts of the Wood. In Shrubs, and those which have not a very thick woody Body, and are pretty pithy, these Bladders are visibly extended as far as the Pith, and resolve themselves into it; whence it plainly appears, that the Bladders in the Bark, and those in the Pith, are of the same Nature. They are composed of oval Bodies, which communicate one with another; whence they are swell'd with the Juice of the Plant, in some with a limpid, in others with a tinctur'd Liquor. Each Bladder consists of a fine transparent Membrane; and, in different Plants, they are very different, both in Number, Size, Texture, and Extension.

The Vessels containing the proper and essential Juice of the Plant are disposed in as many Circles as there are Coats, or Strata, of annual Increase from the Pith to the Bark; for these Strata are the same with the inner Parts of the Bark, which every Year apply themselves to the Wood, being render'd thus compact by the Pressure of the woody Fibres, which surround them on all Sides.

The Air-vessels consist of certain spiral Lines, each of which is composed of a great many squamous parallel Fibres, and of a great Number of smaller Fibres, which run across these, and cover them in the manner of a Coat.

These Air-pipes contain, as it were, certain pulmonary Vessels; and, where they communicate one with another, are sometimes of an oval form, and always closed at the other End, so that they bear no small Resemblance to the Vessels in the Lungs of Insects. And Nature seems to have given both to Plants and Insects, instead of Lungs, these spiral Vessels, thus composed of hollow squamous Fibres, for the better bearing the sudden Pressure and Dilatation of the Air, in those violent Flexures which Trees are liable to, and the elastic Motion of the included Air.

They are mostly supported, surrounded on all Sides, and sometimes streighten'd by the woody Fibres; whence, on cutting the Wood across, their Orifices frequently appear oval or round, and sometimes angular. They run up almost in right Lines from the Root to the Trunk, whence they are dispersed thro' the Branches, and, growing curved in the Leaves, are interwoven in the manner of a Net. These Vessels, except the Sap-vessels of the Bark, are by far the largest of all, and occur in great Plenty thro' the whole Substance of the Wood; but none have ever been observed in the Bark.

The Pith, which was formerly look'd upon as analogous to the Heart and Brain in Animals, consists of a great Number of little Globules, rank'd lengthways. These Globules, which are so many little Bladders, or membranous Vesicles, in most Plants are of a round, and in some of an angular or cubical Figure, consisting of five or eight Sides.

Now the Pith, tho' it has a different Name from the spongy Substance of the Wood and Bark, yet is of the same Nature and Substance, as appears not only from its Texture, but Continuity; for the little Bladders, which form that spongy Substance, run quite from the Bark thro' the woody Fibres, and end in the Pith; whence it is plain, they partake of the same Nature: And, indeed, they differ in nothing but Size, the Vesicles of the Pith being very large, those of the Bark less, and those of the Wood the smallest of all. The Quantity of Pith is likewise different in various Plants; and is, in general, more in Shrubs, and the herbaceous Kinds, in proportion to their Size, than in Trees. It may be distinguish'd into its Vessels and Bladders; the first of which are placed at the Extremities of the Pith, which they circle round, and embrace. These Vessels contain the proper and essential Juice of the Plant.

The Bladders of the Pith are likewise of different Magnitudes in different Plants, at least an hundred times larger in some than in others; as in the common Thistle, for Example, than in the Oak. And it must also be observed, that the Size of these Bladders bears no Proportion to the Quantity of Pith;

for

in the Pith of the Elder-tree, which is more in Quantity than that of the Berberry-tree, the Bladders which compose it are as small again as those of the latter.

The Pith is only succulent or sappy the first Year, its Bladders, after that, growing dry, lax, and soft; and this Sap it probably receives from the reticular Vessels which surround it.

The Texture of the Branch is exactly the same with that of the Trunk.

But here we must not forget two very material Parts, remark'd by the curious Observers of Nature; and these are the Knots, and the Buds.

The Knots are those Parts of a Plant in which the Buds are lodged, and from whence it shoots out its Branches. They not only serve as Abutments for the dilating Sap to exert its Force upon, but also to prevent the rarefy'd Sap's too free Retreat from the Pith.

The Buds, to use Mr. Bradley's Words, have their first Rise in the Pith; they are there framed, and as they become fit for Action, by being furnish'd with every necessary Part for Vegetation, they are forced along certain Channells, till they meet the Air at the tender Bark, thro' which they make their Way, and would drop to the Ground, were they not restrain'd by a Number of Sap-vessels, which serve as so many Roots to nourish them from the Body of the Tree. These Buds are, in every respect, as perfect as the Seed, or rather more so; for a Bud contains a whole Plant, roll'd up in itself; and has, for the most part, its Juices so well digested, as to come sooner to bear Fruit than the Plant wrapp'd up in the Seed.

The Difference between a Bud and a Seed is, that a Seed consists of Lobes and Ear-leaves, which include the young Plant, and serve to give it the first Stamp, by teaching it what kind of Juices it ought to draw from the Earth for its Nourishment: But a Bud has no Occasion for such Ear-leaves, because it takes Root immediately in the Body of the Tree, where the Juices are already fit for it.

Buds likewise differ from Seeds, inasmuch as they are always constant to the Mother-tree, and exact Representatives of the Plant that produced them; whereas Seeds multiply their own Species, with Variety of Complexions, all the Plants produced by them being some way different from one another, either by some little Variation in the Colour of the Flower, the Taste, or Time of ripening of their Fruit, the Flower or Figure of it, or some Difference in the Shape or Colour of the Leaves. And Nature, in this respect, seems to observe the same Conduct as amongst Animals, where no two Faces are exactly alike; and where no Offspring perfectly resembles either Mother or Sire.

This constant Likeness, therefore, of the Plant, proceeding from the Bud to the Mother-tree, seems as if design'd on purpose to support the Reputation of the Mother-plant, and, in some measure, to make amends to Plants for their Deficiency in the want of local Motion; since, by the Bud, any particular Fruit, or Tree of Merit, may come to be naturaliz'd in any Part of the World.

But it must be observ'd, that the Buds are of several Sorts, viz. either Leaf-buds, or Blossom-buds. The Difference between them may be known in most sorts of Fruit-trees, before they open, by observing, that the Leaf-buds are long, thin, and pointed; but the Blossom-buds short and turgid. The Juices also, in the first, are more fluent and aqueous; and, in the latter, more digested and gummy. But both these sorts of Buds proceed from the Pith of the young Wood, and are disposed for different Offices, as the Plant or Branches that produce them are more or less vigorous. The most vigorous bring Leaf-buds, and those that are smaller, and seem to be less nourish'd, produce Blossom-buds.

They are spread into Branches, when the Temper of the Air is such, as to render the Sap or Juices of the Plant of such a Fluidity as to circulate thro' the Vessels without Interruption; when the Sap, being sufficiently fluid, fills the Buds, and they, by degrees, are open'd into Shoots and Branches, every one of which is properly a Tree growing upon another Tree; which makes it practicable to cut off Branches from any Tree, where we please, without destroying the Tree; whereas, if a Tree was one entire Body, as the Body of an Animal, the cutting off the Branch would endanger the Whole.

But the Buds are not confin'd to the Parts above Ground only, being fram'd in the Pith of the Root, as well as in that of any other Part; and here it is worthy our Notice, that those which are form'd in the Root, are impress'd with the Form of the Root, when put in Action; and so those Buds which are form'd in the Branches, are also model'd for Branches, when they begin to act; but, in their Principles, they are both the same. For if we expose the Roots of a Tree to the Air, after allowing them a little Time to be acquainted with the Element, they will put out Buds in such sort, as to produce Leaves; and if we lay down a Branch of a Tree in the Earth, after it has had time to reconcile itself to that Situation, those Buds form'd in the Pith, when they begin to move, instead of Leaves, or Flowers, or Fruit, which they would have produc'd, if raised in the Air, will now bring forth Roots, and from them others.

And hence it is likewise observable, that as the Pith, of consequence, is only found in the younger Shoots; so, if we would increase a Tree by Layers, those Layers must be of the young Shoots, where this Pith is perfect; otherwise they will want those Seeds or Buds, so necessary to the Production of the Root.

The Leaf consists of the same Parts as the Trunk and Branches, that is, woody Fibres, or Lympheducts, Vessels containing the specific Juice of the Plant, Air-vessels, a Parenchyma, or Ranks of little Bladders, which fill up the Spaces between the reticular Fibres, and a Cuticle; all which are substantially the same with those of the Branches: For the Cuticle of the Leaf, for Example, is no more than the Amplification of that of the Branch; as the Fibres or Nerves, dispersed thro' the Leaf, are only the Ramifications of the Wood of the Branch, or lignous Body. So likewise the Parenchyma of the Leaf, which lies betwixt the Nerves, and fills all up, is nothing else but the Continuations of the cortical Body, or the inner Part of the Bark, from the Branch into itself; as in most Plants, with a fat Leaf, may easily be discern'd. For it must be observed, that the Stalk of the Leaf, which is composed of all these, where it enters the Leaf, divides itself, like another Trunk, into a great Number of Branches; and these again are subdivided into a great many lesser Branches or Twigs, which mutually crossing each other, compose a kind of Net-work, which is very visible in the Leaves of some Plants, particularly on the back Side of those of Sage.

That these Fibres are likewise accompanied by the Vessels containing the specific Juice of the Plant, is evident from the different Colour of their Contents, which discovers itself upon Dissection of the Leaves, as a Milk in those of Spurge and Succory, and in those of Celandine a yellowish Liquid. And tho' this is not so apparent in the Leaves of many Plants, where these Vessels are only full of a limpid aqueous Fluid, yet the aforesaid Instances are sufficient to convince us, that they are present in all.

The Spaces between these Vessels and Fibres, being fill'd up by the above-mention'd little Bladders, form the Parenchyma, or fleshy Part of the Leaf; and these Bladders, according to the Nature of the Sap they contain, and the Closeness or Laxity of their Pores, are of different Figures upon the Surface of the Leaf, as in some angular, in others quite irregular.

Between these Bladders and the reticular Fibres, Malpighi observes, that there are several little Cells or Pores dispersed, which serve for the Discharge of some Fluid, or the Exhalation of some Vapour.

The Whole is cover'd with a fine Cuticle, or Epidermis, which partakes of the Colour of its Contents.

Dr. Grew divides the Flowers of Plants into the Empalement, Foliation, and Attire.

The Empalement is the outermost Part of a Flower, which covers it before it is blown, and forms a kind of Support for it afterwards. This is call'd by some the Perianthium, as surrounding the Flower; and by others, improperly, the Calix, or Cup; for the Calix is properly the hollow Cup form'd by the Perianthium, or Empalement, out of which the other Parts of the Flower grow. There are some Flowers whose Petals, or Flower-leaves, have a firm and strong Basis, sufficient to support themselves, and therefore stand in need of no Empalement or Perianthium; and accordingly Nature has given them none, as may be seen in the Tulip. These, however, have a Calix or Cup.

By the Foliation Dr. Grew means the Assemblage of the Petala, or those finely colour'd Flower-leaves, which constitute the Beauty of the Flower. These Petala, or Flower-leaves, grow generally immediately within the Perianthium, or Empalement, from the Edges of the Calix or Cup, and inclose the Attire, or Male and Female Parts of the Flower. Some Flowers consist of one Petal, or Flower-leaf, and are of different Shapes in different Plants, as that of a Bell, or a Funnel; and sometimes of two, three, four, or five Petals; and sometimes of a Number, as in the Marygold and Sun-flower.

There is a large Class of Plants which have no Petals at all, and therefore are call'd apetalous, as Hops, Mercury, Nettles, and Docks. These are also call'd stameneous Flowers, from their great Number of Stamina or Chives.

These Petals are design'd by Nature for the Safeguard of the Parts of Generation in the Flower; and hence we see them expand themselves at the Rising of the Sun, to receive the Heat; and close up, some more, others less, at the Approach of Rain or Night. Nor is this their only Office; they also draw and convey Nourishment to the Embryo, Fruits, and Seeds; for as soon as the Pistil is form'd into a small Fruit, now impregnated with its minute seminal Tree, furnish'd with its Secundines or Membranes, the Blossom falls off, leaving this new-form'd Egg, or first-set Fruit, to imbibe Nourishment for itself, and the Pœtus with which it is impregnated; which Nourishment is brought within the Reach and Power of its Suction by the adjoining Leaves.

We now come to the generative Parts of Plants, call'd by Dr. *Greve* the Attire. These consist of the Male Parts, call'd the Stamina or Chives, and Apices; and the Female Parts, call'd the Pistillum or Stylus.

The Stamina are those fine Threads which grow up within the Foliation, surrounding the Pistil, as may be seen in Tulips and Lilies.

On the Tops of these Stamina, or Chives, are placed the Apices, or little Knobs, which may properly be call'd the Testicles of Flowers; because they contain the *Farina fecundans*, or Seed necessary for the Impregnation of the Pistillum, which may be call'd the Womb of the Plant.

In some Flowers these Stamina are exceedingly short, and in others there are none at all; but in those the Apices, with the *Farina fecundans*, or impregnating Dust, are fix'd immediately to the Capsula, or Pod, which contains the Seed.

In other Flowers, as the Thistle, and Lettuce, several of these Stamina, uniting together, form a little kind of Tube, or Pipe, which incloses the Apices, furnish'd with their impregnating Dust.

The *Farina fecundans*, or impregnating Dust, is form'd in the Apices, which, when ripe, burst; and then the *Farina* falls upon the Head of the Pistil, or Female Part of the Flower, and is thence convey'd to the Matrix, or Womb, in order to impregnate the Seed.

This *Farina fecundans* is what is gather'd by the Bees, in order to make their Wax.

The Pistil is the Female Part of the Plant. It grows upright from the very Middle of the Cavity form'd by the Flower-leaves, which is call'd the Calix; and, when ripe, forms the Pod that contains the Seed, or becomes the Fruit. Sometimes the Pistil is enlarged at both Ends, in the Shape of a Pestle, whence it derives its Name; sometimes it is, as it were, only a sort of Thread; in some Plants it terminates in several Branches, or Horns, which have their Rise from as many Pods, containing Seeds; sometimes it is round, sometimes square, triangular, or oval.

The Pistil in some Flowers is cover'd, at the Top, with very fine Hairs, which make it like Velvet. In others it is furnish'd with a sort of Plume; and others are cover'd with Vesicles, or small Bladders, full of a glutinous Juice: But all Pistils, of whatever Shape they are, have little Openings at the Top, which receive the *Farina fecundans*; and have also little Channels within, which convey the same *Farina fecundans* to the Seed, in order to its Impregnation.

Some Authors make no Distinction between the Pistil and Stylus; but *Malpighi*, and after him *Bradley*, seem to call it a Pistil when it contains the Seed within it; and name that Part the Stylus, which, in some Flowers, dries and falls off, after the Impregnation of the Seed.

Many and very different are the Opinions of Authors, in regard to the Generation of Plants: Without entering into their Disputes, we shall give that Account of it, which seems to us most probable; after having observed, that most Plants are Hermaphrodites, among which some, and that the greatest Part of them, contain both the Male and Female Parts of Generation in the same Flower. Others, the Melon for Example, bear Flowers upon the same Stem, of different Sexes, the Female, which produce Fruit, and the Male, which produce none. There are also some entire Plants, which bear Flowers without Fruit; whilst others, of the same Species and Name, bear Fruit without Flowers; and they are hence distinguish'd into Male and Female Plants. Of this last Kind are the Palm-tree, Poplar, Hops and Hemp. The Male are those which produce the Flower, and the Female those which produce the Seed.

Now 'tis highly probable, that the Embryo of the young Plant, or that Part which we have before describ'd as lying in the Middle of the Seed, and which we have distinguish'd into the Radicle and Plume, is form'd by the *Farina fecundans*, which, falling down the Pistil into the Uterus or Womb of the Plant, meets there with a proper Receptacle, where it fixes; and that the Lobes of the Seed, above describ'd, which perform the same Office as the Membranes, Placenta, Cotyledons, or After-birth, do to the Young of Animals, are furnish'd by the Female Part of the Plant.

When the Male and Female Parts of the Flower are pretty near to each other, it is not difficult to conceive, how the *Farina fecundans*, or, as it may be call'd, the Male Sperm, is convey'd to the Pistil, or Womb: But when the Male and Female Flowers are at a Distance from each other upon the same Stem, but more particularly when they grow upon different Plants of the same Species, it is not so easy to comprehend how the impregnating Dust of the Male Plant is convey'd to the Female Plant, especially when they are at a great Distance from each other.

We have a Story in *Jovianus Pontanus*, which will give the Reader an Idea of the vast Distances to which the impregnating Dust may be carried. He tells us, that there was a Female Palm-tree which grew in the Wood of *Otranto*, and a Male Palm-tree at *Brindisi*, fifteen Leagues from the Female; that

the Female was barren for several Years, and bore no Fruit at all; till at last growing above the other Trees of the Wood, it began to be fruitful, and bore great Quantities, tho' there was no other Male Palm-tree nearer than that at *Brindisi*.

Most Authors, that have treated of the Generation of Plants, have quoted this History; and, I think, generally agree, that the Male Dust must be brought from the Male Tree at *Brindisi*, to the Female at *Otranto*, by the Wind; and therefore conclude, that the Wind is the Agent which carries the Dust from the Male Plant to the Female. This would be very probable, provided these Palm-trees grew betwixt the Tropics, where the Wind, for at least three Parts of the Year, blows from the East, and the Situation of the Male Tree had been towards the East of the Female; but if the Female had been placed East of the Male, it would have proved a very unfortunate Position for the Female, which must therefore have certainly been barren.

For my own part, I don't think it probable, that the Supreme Being, who always orders all the Operations of Nature to be perform'd in the best manner, should leave a Thing of so much Consequence, as that of the Generation of Plants, to be conducted by so uncertain an Agent as the Wind; which would undoubtedly leave a great Number of Plants barren, if it did not happen to blow from a right Point, just at the Time that the Dust of the Male, being arrived at Maturity, was ready to be carried to the Female Plant.

I am therefore of Opinion, that there is some Power in Nature, which has not yet been duly consider'd by the Learned, capable of affording so sure a Conveyance to the Male Dust, that it can never fail impregnating the Female.

There is a Power in Nature to which Philosophers have given the Name of *Electricity*, because first observed in Amber, call'd in Latin *Electrum*. This is an attractive or magnetic Force, which the aforesaid Amber, Glass, and many other Bodies, exert, when rubb'd till they are warm, and by which they draw to themselves any light Body that is near them, and sometimes repel the said Bodies from them. Mr. *Gray*, of our own Royal Society, and Monsieur *du Fay*, of the French Academy of Sciences, have, by their indefatigable Researches, discover'd many amazing Properties of electrical Bodies, too long to enumerate in this Place. But it is very much to our present Purpose to observe, that Bees-wax is endued with this attractive Power, at least as much as any other Body whatever, and that without any rubbing at all; and this electrical or attractive Force Bees-wax retains longer than any other Body.

Now, if we consider, that Bees-wax is little more than a Mass of the *Farina fecundans*, or impregnating Dust of Flowers, collected by the Bees, it seems very likely, that every Particle of this was endu'd with a certain electrical or attractive Force, before it was gather'd from the Flower; and if so, why may we not presume, that the Pistil or Womb of the Plant, and the *Farina fecundans*, or impregnating Dust, strongly attract each other? And as some Bodies are known to exert an attractive Force to a prodigious Distance, we may easily conceive, that it is possible for the *Farina fecundans* of a Male Palm to sail, even against the Wind, from *Brindisi* to *Otranto*, though fifteen Leagues asunder, when the Female Palm was grown high enough to receive the *Farina*, which, before that, would be intercepted in its Passage by the other Trees of the Forrest.

There are some Circumstances relating to Electricity, which seem to confirm, that what we have hinted at is, at least, one of its principal Uses. One is, that this electrical Virtue of Bodies is much diminish'd by a moist Air. Another is, that it does not exert itself so vigorously, during the Heat of the Day.

Curious Observers of Nature will discover, upon Examination, that the Generation of Plants is principally carried on in the most temperate Part of the Day, and when the Sun has been risen long enough to dry in some measure the Air, and elevate the Vapours to some Distance from the Surface of the Earth. At this time the Mulberry, and many other Trees, during the Season of their generating, may be seen surrounded, as it were, with a Cloud of Dust; and this Appearance is not observable at any other Season of the Year but that in which they generate, nor any other time of the Day but early in the Morning.

Having now dispatch'd the Structure of Plants, and their Generation, we shall next proceed to their Vegetation or Growth.

Of the Vegetation or Growth of Plants.

In order to form some Idea of the Vegetation of Plants, it will not be amiss to consider the Production of a Plant as the Result of a Chymical Process, in which Nature is the Operator, and the Person who cultivates the Ground an Assistant.

The first thing then, that is done, is to manure the Land, or, in other Words, to furnish it with an alkaline Salt. Here we must suppose, that the Earth to be manur'd was before depriv'd of all its Salts, by bearing too frequent Crops, otherwise this Part of the Operation would be unnecessary; Nature un-

assisted being abundantly sufficient to supply the Ground with a due Quantity of Salts; but, when these are taken away, Nature unaided is a long time in providing more.

These Salts, while they retain their alkaline Nature according to their known Property, divide the Earth into small Particles, and render it light, and disposed to crumble and fall in Pieces, like Lime, when Water is pour'd upon it; and thereby promote its Fertility. It is for this very Reason that frequent Ploughing, or Digging, fertilizes the Ground, and is what People mean when they talk of *making it mellow*.

When this is done, Nature furnishes these alkaline Salts with a Fluid to dissolve them, that is, they attract strongly the Vapours and Dews floating in the Air, which have already been render'd somewhat oily, by the Oils of Animals and Vegetables, which perpetually float in the Atmosphere. By these oily Dews, they are dissolv'd into a kind of Oil, *per Deliquium*, and sink into the Bosom of the Earth, which may be esteem'd as the Vessel in which this Operation, or Process of Vegetation, is perform'd; and here again they meet with an Oil, of which all Earths contain more or less.

It has been observ'd under the Article *ALKALINE*, that if Salts are mix'd with any Acid, especially when in a fluid State, an Effervescence is rais'd, with Ebullition, and a violent intestine Motion; and that they attract the Acid of the Air so strongly, as in time to be impregnated therewith, and to become entirely neutral. It is then easy to understand, that whilst these Salts lie in the Bosom of the Earth, dissolv'd into what the Chymists call an Oil *per Deliquium*, or, in other Words, a *Lixivium* or *Lye*, as they gradually attract the Acid of the Air, a gentle Effervescence, or Ebullition, must be caus'd, which must divide and break those Parts of the Soil, which before cohered strongly together, and render the Earth yet more light and mellow.

Now let us call to mind, that when alkaline Salts are digested with an Oil, they intimately unite with it, and form a penetrating deterging Substance, which is dissoluble in Water, and is of a Nature very different, both from the component alkaline Salt, and Oil; and this is commonly called Soap.

When therefore these alkaline Salts are committed to the Earth, and dissolv'd into a kind of *Lye*, meeting there with an Oil, these Salts and this Oil are digested by the Heat of the Sun, united together, and converted into a Soap much more perfect than the artificial Sort we make use of; for this last always retains some of the Acridness of its Parent Salt, which renders it unfit for the Purposes of Vegetation till neutraliz'd; whereas that form'd in the Soil is render'd entirely neutral as it is made, the Salts attracting and imbibing the Acid of the Air, at the same time that they are mixing with the Oils of the Earth, in order to be transform'd into a Soap. See *ACETUM*.

As all Vegetables whatever contain a large Quantity of Earth, it seems at first View somewhat difficult to explain, how it should be able to get there; because the Pores of the Roots are too small to admit of Earth undissolv'd, and perhaps even of Water; or, if they would admit Water, we find that utterly incapable of dissolving Earth. How therefore Earth comes to be dissolv'd, and render'd capable of entering through the Pores of the Roots, we are now endeavouring to explain.

The Solution of a Body is nothing more than dividing it into Particles small enough to swim in the Menstruum, or solvent Liquor, without being visible. Thus, when Salts of any kind are dissolv'd in Water, their Particles are so divided by the Menstruum, Water, as to become invisible whilst they float in it. Now the dividing the Earth into small Particles, in the manner just above-mention'd, is one Step towards a Solution.

Let us now consider the saponaceous neutral Juice, form'd in the Earth by an alkaline Salt, an Oil, and the Acid of the Air, as a saponaceous or soapy Menstruum, or Solvent, and see how it is capable of acting upon Earth; and, in order to make this the more plain, we shall give a very obvious Example, which falls under the Observation of every body.

When Cloaths, or Linen, or any thing else, are dirty, that is, have Concretions of Earth sticking to them, we find the most effectual way to make them clean, is to wash them in Water wherein Soap has been dissolv'd. Here then Soap penetrates the Pores of the Earth, divides it into exceeding fine Particles, and in some measure dissolves it. A saponaceous Fluid, therefore, bids the fairest of any thing we are acquainted with, to be the Menstruum or Solvent of Earth, and it is probable, that the saponaceous Fluid which is made in the Bosom of the Earth by a long Digestion, is more penetrating than any artificial Soap, and consequently more capable of dissolving Earth.

We shall be still farther confirm'd in this Opinion, if we consider this Juice of the Earth as a neutral Menstruum or Solvent; for it appears by a great Number of Chymical Experiments, that neutral Menstruums will dissolve many Bodies or Substances, especially those that are of an earthy Nature, which no other Menstruums or Solvents will touch.

From what has been said, it appears very plain, that, when the Earth has for a considerable time been, as it were, digested by the Heat of the Sun, in a saponaceous, neutral Liquor, the Rains, falling in great Quantities, dilute this saponaceous Liquor more, extract a kind of Tincture from the Earth, that is, dissolve a Quantity thereof sufficient for the Purposes of Vegetation, which, entering the Pores of the Root, is carried into the Stem of the Plant; and by this means is brought about what could not be effected by Water alone, that is, a Solution of Earth.

The Antients, who were fond of concealing all their Knowledge under Allegories, seem, however, to give some Hints of the Earth being impregnated by the Air. Thus *Homer* tells us, that when *Jupiter*, that is, the Air, lay with *Juno*, meaning the Earth, on the Top of *Gargarus*, the Flowers sprung up under them to make them a Bed.

Ἡ ῥα, καὶ ἀγκὰς ἐμαρπτε Κρένε παῖς ἦν παρακοίβιν,
τοῖσι δ' ὑπὸ χθῶν δια φύεν νεοβηλέα ποίην,
λαβὼν θ' ἐρσηνέηα, ἰδὲ κρόνον, ἠδ' ὑάκινθον
Πυκνὸν καὶ μαλακὸν ὥς ἀπὸ χθονὸς ὑψὸς ἔειγε·
τῷ ἔνι λεξάσθην, ἐπεὶ δὲ νεφέλῃν ἔσανατο
καλὴν, χρυσείην· σιλπναὶ δ' ἀπέπιπτον ἔρισαι. Il. 14. 346, &c.

Gazing, he spoke; and, kindling at the View,
His eager Arms around the Goddess threw.
Glad Earth perceives, and from her Bosom pours
Unbidden Herbs, and voluntary Flow'rs.
Thick new-born Violets a soft Carpet spread,
And clust'ring Lotos swell'd the rising Bed:
And sudden Hyacinths the Turf bestrow,
And flamy Crocus made the Mountains glow.
There golden Clouds conceal the heav'nly Pair,
Steep'd in soft Joys, and circumfus'd with Air;
Celestial Dews, descending o'er the Ground,
Perfume the Mount, and breathe Ambrosia round. POPE.

Virgil in some measure explains this Passage in *Homer*, speaking of the Spring.

Tum Pater omnipotens fœcundis Imbribus Æther
Conjugis in Gremium læta descendit, & omnes
Magnus alit, magno commixtus Corpore, Fœtus.
Georg. L. 2. v. 325, &c.

For then Almighty *Jove* descends, and pours
Into his buxom Bride his fruitful Show'rs.
And, mixing his large Limbs with hers, he seeds
Her Births with kindly Juice, and fosters teeming Seeds. DRYDEN.

Both these great Poets seem equally sensible, that the Earth owes its Fecundity to the Air; but I don't know, that either they, or any more modern Authors, have explain'd the Manner how this Impregnation is brought about.

We have before observ'd a great Analogy betwixt Animals and Vegetables. It will very much illustrate the Doctrine already laid down, in regard to the Preparation of the Food of Vegetables, that is, the Juices which enter their Roots for their Nourishment, to explain the Ways which Nature takes to prepare the Food of Animals in their respective Stomachs.

There have for many Ages been great Disputes amongst Authors who have wrote upon the Animal Oeconomy, concerning the Digestion of Food taken into the Stomach. Most have agreed, that some kind of Menstruum was necessary for its Solution. Amongst these, some have affirm'd it to be an alkaline Solvent, some an acid: There are others, who have attributed this Solution to a Ferment in the Stomach, and some have imagin'd, that Digestion was perform'd by Trituration, or grinding, as it were, the Aliment, contain'd in the Stomach, betwixt the Diaphragm and the Muscles of the Belly. But *Papin*, and since him, many more tell us, that the Aliment is digested by the Heat of the Stomach, which, rarefying the Air contain'd in the Food, breaks it into small Particles, and reduces it into a Fluid. It would be endless to enter into a Detail of all the Inconsistencies which have been broached upon this Subject: I shall therefore content myself with observing, that it is probable, that the Saliva, or Spittle, together with the Juices pour'd into the Stomach out of its own Glands, much of the same Nature as the Saliva, furnish a Menstruum or Dissolvent entirely neutral, of a penetrating saponaceous or soapy Nature, capable of dissolving the Aliment by the Assistance of a gentle Heat, without having recourse to an acid or alkaline Menstruum, Ferments, and Trituration. When this Operation is perform'd in the Stomach, the Aliment, thus far digested, is protruded by a gentle Pressure from the Diaphragm and Muscles of the Belly into the Intestine, or Gut, called by Anatomists the *Duodenum*, where it again meets with a Fluid of all others, perhaps, the most saponaceous and penetrating, I mean the Bile, or, as it is usually called, the Gall; and, mixing therewith, undergoes a farther Solution, is render'd more fluid, and fitted to enter the Mouths of the Lacteal

Lacteal Vessels, which open into the Intestines, and perform the same Office to Animals, as the fibrous Parts of Roots do to Vegetables.

That the Saliva, or Spittle, is of a saponaceous Nature, any one will readily be convinc'd, that thinks it worth while to try an easy Experiment; for he will find, that Spittle will dissolve Concretions of Earth, or, in other Words, Dirt, adhering or sticking to any Substances much sooner than Water.

There is a Remedy recommended by the good old Women for Wens, or other small Swellings upon the Surface of the Body, which, however vulgar, is said to be a very good one; it is to anoint the Part with Fastings-spittle: Now the good Effect it has in these Cases, is owing to its saponaceous, penetrating Nature.

Gall is so commonly known to be a natural Soap, that it is frequently used in Washing, especially that of Oxen, which is easily procur'd, instead of artificial Soap.

It is remarkable, that the Gall of Pikes, Eels, and other Fishes of Prey, which want some Helps to Digestion which other Animals enjoy, have a Gall the most penetrating and saponaceous of all other Animals. See BILLS.

From what has been said about Digestion, it appears how little those People consult their Health, who draw off vast Quantities of their Saliva, or Spittle, by smoking, or chewing Tobacco.

From hence also it appears, that Nature is simple and uniform in preparing the Pabulum, or Food, both of Animals and Vegetables.

This Subject must not be dismissed without animadverting upon an Error of many Authors, who have compar'd the Roots of Plants to the Stomachs of Animals, which seems to be without the least Foundation; for the Food of Plants, or the Juices which are to circulate therein, are prepar'd in the Bosom of the Earth before they enter the Pores of the Root; and the Office of the Root seems to be little more than to furnish Conduits, or Pipes, to convey these Juices to the Stem; though it is probable, they may undergo some Alteration by circulating in the Vessels of the Root.

The nutritious Juices of Plants being thus prepar'd in the Bosom of the Earth, we are now to explain, how it comes to pass, that they enter into the Seed. In order to do this, we must observe, that all Bodies whatever are expanded, that is, grow larger, by Heat. When therefore a Seed has lain all Winter in the Ground without any Signs of Germination, in the Spring, as the Seed is distended by the Heat of the Sun in all its Dimensions, though never so little, there must be some vacant Spaces within it; and, as Fluids press every Way, the nutritious Juices in the Earth, with which the Seed is surrounded, will enter the Foramen, or Hole, which we have describ'd to be at one End thereof, and fill up these Vacancies. When they are once got within the Seed, being extremely penetrating, they enter the Pores of the Cotyledons, or Lobes, for the very same Reason that they first enter'd the Seed. From hence passing through the *Funis umbilicalis*, or Navel-string, they are communicated to the Radicle and Plume, which are thereby distended, or, as it were, unfolded. And thus is the Circulation in the Infant Plant carried on, till the Radicle, by degrees extending itself into the Earth, fixes there, and becomes capable at last of furnishing the whole Plant with a nutritious Juice, whilst the Plume, shooting in a contrary Direction, in a very little time, flourishes above the Surface of the Earth.

Some Gentlemen of the Royal Academy of Sciences have pretty much puzzled themselves, and their Readers, in endeavouring to give the Reasons why the Plume ascends, and the Radicle descends, when a Seed happens to be inverted in the Earth, which must often be the Case, or, in other Words, when the Plume, which ought to tend upwards, lies lowermost, or in any other Direction but perpendicular; viz. pointing to the Surface of the Earth. 'Tis certain, that Seeds of all Kinds, from the smallest to the largest, tho' thrown never so confusedly into the Earth, and lying there in all manner of Directions, notwithstanding these Disadvantages, redress themselves when they come to spring and rise with the Plume perpendicular to the Surface of the Earth; and this is one of those amazing Instances of the Wisdom of Providence, which never leaves the Welfare of its Productions to Chance, but conducts the most inconsiderable Parts of the Creation with so much Art and Oeconomy, that the more we are acquainted with it, the more we must admire it. It seems exceeding easy to explain how this Perpendicularity is effected, if we only consider, that, whilst the Radicle is fixing itself in the Earth, the Plume lies betwixt the two Lobes, which Lobes afterwards shoot out of the Ground, together with the Plume, and become the seminal Leaves in all Plants, except those of the Pulse Kind, which have something analogous to them. We must also consider, that Fluids of all Kinds contain a great Quantity of Air.

This Part then of the Operation of Vegetation seems to us to be perform'd in the following manner; the Lobes of

the Seed are distended with, and full of, the nutritious saponaceous Juice of the Earth, which Juice has in it a great Quantity of Air: This Air, being rarefied by the Heat of the Sun, is perpetually endeavouring to ascend, and get above the Surface of the Earth, that it may perspire through the Pores of the Lobes, and mix with the Atmosphere, as we find in Fact it does, when these Lobes become the seminal Leaves, and get above the Surface of the Ground; but the Pores of the Lobes being stopp'd by the surrounding Earth, the Air, which cannot yet make its Escape, acting perpetually upon the Inside of the Lobes, forces them to tend perpendicularly upwards, and with them the Plume.

If it should be said, that the Grains of Barley, in Steep in order to be made into Malt, or that Acorns, Chestnuts, Pistachio-nuts, or any other Seeds, when laid in a moist Place to sprout, send the Radicle downwards, and the Plume upwards, notwithstanding the Pores of the Lobes cannot in this Situation be stopp'd by the surrounding Earth; I answer, That even supposing the Pores of the Lobes not to be stopp'd at all, the same End will yet be answer'd, and the Lobes, together with the Plume, will be elevated perpendicularly, by the rarefied Air perspiring through the Pores, and tending upwards.

But if we may suppose, that the perspiring Air carries along with it a Portion of the nutritious Juice, in the Form of a Vapour, imperceptible to the naked Eye, as such Vapours always ascend, they must necessarily make the Lobes from whence they perspire, endeavour to do so likewise, because they must have this Tendency to rise, before they have quitted the Vessels in which they were contain'd, whilst circulating in the Lobes.

Now, if this Reasoning, in regard to the Elevation of the Plume, holds good, 'tis not necessary to mention the Reasons why the Radicle shoots downwards, because the Radicle must necessarily grow in a Direction contrary to that of the Plume.

Let us now pursue the Progress of the nutritious Juice, or Sap, and endeavour to investigate the Method taken by Nature to conduct this Embryo to a perfect State.

We have observ'd above, that the Radicle and Plume receive their first Nourishment from the Lobes. Now, when the Radicle has fix'd itself in the Earth, and has put out Fibres sufficient for the Support of the Plant, 'tis probable, that the Order of Circulation is chang'd, and that the Lobes, now about to become the seminal Leaves, receive, in their turn, Nourishment from their Root, either by the same Vessels which originally convey'd Nourishment to the Radicle, or by others, which last is most probable.

These Lobes, now become seminal Leaves, and got above Ground, are of great Use to the Plant; for, if these are taken away before the true Leaves are expanded sufficiently to perform their Office, the Plant immediately withers and dies. The Office they perform I take to be this.

'Tis a known Maxim in Hydraulics, that when a Number of Branches proceed from one large Pipe, or Canal, if one of these Branches is open'd, a greater Quantity of the Fluid circulating in these Pipes will flow to every Branch proceeding from the same Pipe. Now these seminal Leaves, once got above Ground, are in a perpetual State of Perspiration, when the Heat of the Atmosphere is sufficient to rarefy the Juices of the Plants enough for that Purpose; or in an imbibing State, when the Heat is not so great as to make them perspire, insomuch that Plants generally perspire in the Day-time, and imbibe the Air, and its Contents, in the Night, at the Leaves. When therefore these seminal Leaves are in a State of Perspiration, a greater Quantity of the nutritious Juice is deriv'd not only to these seminal Leaves, but also to the leading Stem or Head of the Plant, which is nourish'd by Vessels proceeding from the same Trunk with those which nourish the seminal Leaves. By means of this Perspiration, there is a perpetual Supply of a nutritious Fluid drawn to the ascending Branch of the Plant for its Support and Increase, which ceases, if the Perspiration of these seminal Leaves is by any means stopp'd, or if the Leaves are taken away before the true Leaves are expanded, and grown large enough to perform their Office, and by perspiring in a due Quantity to draw a sufficient Nourishment to the leading Stem, or Head.

As soon then as the true Leaves are fit to do their Duty, there being no farther Occasion for the seminal Leaves, they immediately wither and rot off; and this Decay of the seminal Leaves is probably caused by the Air, which, entering the Pores of the true Leaves, is from thence communicated to the Air-vessels of the Trunk, which, being distended therewith to the very Root, the small Vessels, which before convey'd the nutritious Juice to the seminal Leaves, are compress'd and stopp'd up; the Consequence of which is, that the seminal Leaves must perish. Here again we have an Instance of an exact Uniformity in animal and vegetable Productions; and may observe, with Wonder, the Analogy betwixt the one and the other.

A young Animal originally receives its Nourishment from a Placenta or Cotyledon, by means of a Navel-string; but as soon as the Animal is born, and is capable of taking in its Nourishment

ment at the Month, there being no farther Occasion for the Placenta or Cotyledon, the Navel-string rots, and the Animal is separated from them. Mean time the Air, falling into the Vessels of the Lungs, entirely alters the Circulation of the Blood and Juices.

'Tis pretty much the same in Vegetables, where the Infant Plant is originally nourish'd by Juices which it receives from the Lobes, by means of Vessels analogous to a Navel-string; but as soon as the Mouths of the Plant, that is, the Pores of the Root, are sufficiently opened to provide for its own Support, the Circulation is somewhat altered; and the Root giving Nourishment to the Lobes, they become the seminal Leaves, which rot off as soon as the Plant has no farther Occasion for their Assistance.

Animals are kept alive by an alternate Inspiration and Expiration of the Air, that is, by the Air's being taken into, and soon after expell'd out of, the Lungs; and if this Inspiration and Expiration is prevented for but a very little time, the Animal dies. There is also something in the Air, which, in all Probability, is communicated to, and mixes with, the Blood of Animals, entering the fine Pores of the Blood-vessels in the Lungs during Inspiration. This I take to be the Acid floating in the Air; and a fresh Supply of this is so necessary to Life, that no Animal can live long, if confin'd in a close Place where there is no Communication with the external Air.

Something of the very same Nature happens to Vegetables; they inspire or take in Air at the Leaves, during the Night, and in moist Weather; and in the Day-time, especially in the Morning, when the Weather is warm, they expire, that is, the Air is expell'd from the Plant, and carries along with it a Part of the nutritious Juice or Sap, in the Form of an exceeding fine Vapour, as it does from the Lungs of Animals, where it is visible in frosty Weather. And this Acid of the Air, or whatever is so necessary to the Life of Animals, is not less so to the Life of Vegetables; for all Plants whatever will quickly die, if set in a close Place, or covered with any Vessel in such a manner, as to be depriv'd of a free Intercourse with the external Air.

The Leaves then of Vegetables may justly be esteem'd their Lungs, and are so necessary to their well-being, that if all the Leaves are pull'd off a Plant, it will neither inspire nor expire; and an immediate Stop is put to all Accretion or Growth, inasmuch that the Plant generally dies. 'Tis upon account of this Perspiration of Plants at the Leaves, that when Trees are transplanted, they cut off a great many of the Leaves and Branches, that they may not perspire too much, and kill themselves before the Roots are sufficiently fix'd in the Ground, to supply them with a due Quantity of Nourishment; and prudent Gardeners shade their Plants, when first transplanted, that the Sun may not make their Perspiration too great, before the Roots are capable of bringing a proportional Supply of Juices. But this Inspiration and Expiration of Plants at the Leaves is only necessary at that Season of the Year when they increase or grow; and accordingly we find, that against the Winter the Leaves drop off, when there is no farther Occasion for their Ministry, from all but Ever-greens, which probably always, in some Degree, inspire and expire.

We have now conducted the Plant above the Surface of the Earth: It remains, that we examine into some Circumstances relating to its Accretion or Growth, and shew by what means it is brought to Perfection.

What has been said of the seminal Leaves drawing Nourishment, holds good of all the true Leaves of a Plant; for they all bring Nourishment to themselves, and the adjacent Parts, by the Means, and for the Reasons already taken Notice of: And as the rarefy'd Air and Vapour in the Leaves is perpetually tending upwards, this still preserves the Perpendicularity of the Plant, and keeps the Stem in an upright Direction, unless it is forced to deviate from its Perpendicularity, by some intervening Accident.

There is another thing which may also contribute something towards the Perpendicularity of Plants, and that is the different Density of the Air at different Distances from the Earth. 'Tis well known, that the Air is heaviest at the Surfaces of the Earth; and that it decreases in Gravity every Inch, to the utmost Limits of the Atmosphere. Now, when a Vegetable is once got above the Surface of the Earth, the Direction of its Growth must be towards that Part where it meets the least Resistance; and as the Air is less dense above the Plant than round about, it must meet with less Resistance upwards, and consequently tend that Way.

I am sensible, that the Difference in the Air's Gravity at such little Distances from the Earth, is very small; but small as it is, it may have a considerable Effect upon so-tender a thing as a young Plant.

As the Body of the Plant is daily more and more distended by the Heat of the Sun in all its Dimensions, the Fluids it contains are yet more distended by the said Cause, I say more, because Fluids having a less Degree of Cohesion than Solids, their component Parts more easily recede from each other, and therefore

take up more Room: The Consequence of this is, that the containing Vessels of the Plant must be press'd on all Sides by the contained Fluid, and grow larger; mean time the Air contained in the Air-vessels of the Plant is also rarefied and distended, so as to keep constantly of the same Density as the external Air. Thus we see the Plant is constantly compress'd betwixt the internal and external Air; and as the Vessels of the Plant are more expanded by the Rarefaction of the internal Air, the external Air is also rarefied, and consequently, pressing less upon the Surface of the Plant, gives it more Liberty to increase its Dimensions outwards, and yield to the internal Pressure both of the Sap, and internal Air; but as the Heat of the Atmosphere is seldom many Moments exactly the same, the Rarefaction and Density both of the internal and external Air must be perpetually altering, as the Heat increases and decreases; insomuch that the Force of the Air acting upon the Inside of the Plant, and upon the Surface, is different almost every Moment; so that by this Pressure, a Plant is acted upon much in the same manner as a Potter, who is going to form a Vessel, would act upon his Clay, pressing the Inside with one Hand, and the Outside with the other.

The reflecting Reader will readily observe, that something more than what we have already mention'd is necessary towards Vegetation, otherwise the Plant would indeed be distended; but then its Vessels would grow much thinner, just in the same manner as a Glass Vessel under the Hands of the Maker decreases in Thickness, as the Surface is enlarged by the Air the Operator forces within; or the Sap-vessels and Air-vessels of the Plant would be like a Parcel of Bladders laid contiguous to each other, some of them distended with Water, and others with Air, where the containing Vessels would decrease in Thickness, as they were expanded by their Contents: We are therefore to explain how it comes to pass, that Plants increase in Solidity as well as Dimensions.

This Part of the Operation then seems to be performed by the means of Cold, in the following manner:

The Heat of the Sun in the Day-time having distended the Sap in the Vessels, and made a Part of it perspire through the Pores of the Leaves, in order to draw Nourishment to themselves and the adjacent Parts, the Coldness of the Night immediately succeeding, when Plants are not in a State of Perspiration, this Coldness contracts both the Solids and Fluids of the Plant; for 'tis the Nature of Cold to contract all Bodies whatever, and reduce them into a less Space, which must be effected by making the Particles of Matter, of which they are compos'd, approach nearer each other; and the Particles of Matter are known to attract each other very strongly at small Distances, and infinitely more when their Surfaces exactly touch each other: Therefore that Part of the fluid Sap which is nearest the solid Sides of the Vessels, is, by the Action of Cold, which contracts both the Solids and Fluids, forc'd into Contact with the Solids, where it sticks fast by reason of the increas'd Attraction; and thus are the Salts and Earth, which were dissolv'd in the Sap, applied to the Vessels, and reduced to a Solid; and in this the Salts and Earth are much assisted by the Oil and Water, which, entering betwixt each Particle of Matter, fill up the vacant Spaces, and render the Cohesion stronger; just in the same manner as two polish'd Pieces of Marble applied to each other will adhere very strongly when the Surfaces are oiled; and as Leather or Paper will stick closely to any Body when wet.

When once these Particles of Matter have acquired such a Degree of Cohesion, the Heat of the Sun, next Day, approaching by gentle Degrees, is not capable of dissolving this Union, which however it would do, was it more sudden and intense; and indeed we find, that this Union is utterly dissolv'd by Heat or Fire applied to Vegetables in a certain Degree; for, when Vegetables are burnt, the Oil and Water is dissipated or destroy'd, whilst the Salts and Earth remain without any considerable Cohesion.

But so far is this gradual Heat from destroying this Cohesion of the Particles of Matter, that it increases it; and by drying up the superfluous Moisture, helps to harden it, and renders it more solid; just in the same manner as Bricks, before they are committed to the Kiln to be burnt, are dried and hardened by the Heat of the Sun.

Thus we see how necessary a Vicissitude of Heat and Cold is to the vegetable World; for without it not a single Plant could grow upon the Face of the Earth: Was the Atmosphere to be always hot, Vegetables would be in a perpetual State of Perspiration, so long as the Earth could afford a Supply of Juices; but then they could never be enlarg'd, or grow bigger, but would be little more than the Neck or Pipe of an Alembic, affording only a Conveyance to that Fluid which is forced thro' them by the Fire. As a Confirmation of this, we may frequently observe in very hot Summers, that Plants set in a warm Place, much exposed to the Sun, perspire themselves almost to Death, and grow but very little; whilst others, planted in the Shade, and defended from the too violent Heat of the Sun, increase in Bulk considerably, and become very large.

Was it always to be cold, Plants would want the Cause of their Extension, and consequently not grow at all.

In either of these Cases the whole Brute Creation must want Subsistence, and consequently Mankind.

Thus as we were originally miraculously formed, we are still supported by a perpetual Chain of Miracles; insomuch that if it pleas'd the supreme Being to dissolve a single Link thereof, an immediate End would be put to the whole Race of Animals upon the Face of the Earth, without having recourse to a Deluge, or a Conflagration.

Many have been the Disputes amongst Naturalists concerning the Circulation of the Sap in Vegetables; some will have it, that it rises in Vessels analogous to the Arteries in Animals, and is again return'd towards the Root by other Vessels analogous to the Veins; others again are of Opinion, that there is no such Retrogradation of the Sap; and both Parties bring Experiments to justify their different Sentiments. For my own Part, I believe there are no peculiar Vessels in Plants destined, like the Arteries and Veins in Animals, for the Flux and Reflux of the circulating Juices; but that the Sap rises, and in some measure again retires, by the same Vessels, as both the solid and fluid Parts of the Plant are dilated by Heat, and contracted by Cold.

It may not be amiss to make one more Observation concerning the strict Analogy there is betwixt Animals and Vegetables. It is well known to Anatomists, that the Bodies of Animals abound with Glands of different Sorts; which are destin'd by Nature to separate various Kinds of Liquors from the Blood, necessary either for the Preservation of the Animal, or the Propagation of the Species; thus the Bile or Gall is separated by the Liver, and the Saliva or Spittle by the Glands about the Mouth and Throat. I don't in the least doubt, that there is a Mechanism like this in Plants of all Sorts; and that Vegetables are furnished with Glands in vast Numbers dispersed all over them, which separate different Liquors from the Sap, according to the Exigencies of those Parts where they are plac'd; and by these Glands I apprehend the nutritious Juices of the Earth are converted, if I may use that Expression, into the specific Juices of the Plant; which Juices distinguish every Plant upon the Face of the Earth from every other Plant, as much as their Forms and Complexions.

What we have above call'd, after Dr. Grew, the *Parenchyma*, I take to consist of a great Number of Glands destin'd to separate a peculiar Fluid from the Sap; and I also take the Pith to be a Congeries or Bundle of Glands, tied to each other; or what the Anatomists call a conglomerate Gland; and as the Pith is in greater Quantity in proportion, and more juicy, in young Plants, and the young Shoots of Trees, than in old ones, I conclude, that it furnishes a Fluid absolutely necessary to the Accretion or Growth of the Plant. Now, as the Buds are form'd in, and proceed from, the Pith, if I may be allow'd a Conjecture, do not the Glands of the Pith separate a Liquor necessary for the Formation and Support of the Bud? And may not the Apices of Flowers be considered as Glands separating the *Farina fecundans*, for the Impregnation of the Pistil or Uterus?

I am far from entering into those romantic Notions and Opinions of some late Writers, who dream that the first Plant of every Species which grow upon the Face of the Earth, contain'd in it every individual Plant, with its Seeds, in Miniature, which have since been propagated from it; for it seems to be more consistent with the general Order observ'd by Providence, that one Plant should, by a particular Mechanism, be render'd capable of forming another of the same Species out of such Materials as the Juices of the Earth afforded, than that at the Creation one Plant should be stuffed into another, and another into that, and so on, *ad infinitum*, like a Nest of Boxes.

We proceed now to make some Observations on the Flowers: The first thing then that occurs worthy of Observation in Flowers is, that they perform the same Office to the generative Organs, as the Leaves do to other Parts of Plants, that is, draw Nourishment to them for their Support, by perspiring; and that they do actually perspire, and in great Quantities, is certain; because they transmit to our Organs certain Effluvia, which affect us with that Sensation which we call Smelling. These Effluvia are a Portion of the *Spiritus Rector*, or prevailing Spirit; which is exactly alike in no two Plants of different Sorts, but the same in every Branch of the same Family, allowing for the Accidents of Soil and Climate, and is inimitable by Art. This *Spiritus Rector* resides in the essential Oils of Vegetables, and is probably form'd by the finest and most volatile Parts of these essential Oils, exalted by, and mixt with, the Particles of Light or Heat, which are embodied with them, and reside therein in a solid Form; and this I the rather believe, because the essential Oils of Plants are of an alkaline Nature, especially those of the aromatic Kind, which, growing in hot Climates, have a greater Proportion of the Particles of Fire in their Composition. Instances to our present Purpose are the Oils of Cloves, Sassafras, and Caraway, which make a violent Effervescence, when mixt with fuming Spirit of Nitre. Now, in many Instances, Fire

renders Bodies it acts upon alkaline, or, however, dissipates or neutralizes the Acids which they contain. Therefore, as essential Oils are of an alkaline Nature, I think it highly probable, that they are render'd so by the Particles of Fire, which enter their Composition. And when I consider the extreme Volatility of this *Spiritus Rector*, I am farther confirm'd in the Opinion, that the Particles of Light or Fire are a Part of its Composition.

If we wanted an Instance to prove the Destruction of Acids by Fire, we might find one in most Kinds of Fruits, which are originally acid; but this Acid is by Degrees destroy'd, and the Juices of the Fruit neutraliz'd, as it imbibes the Particles of Fire, that is, as the Fruit ripens.

I have a few more Observations to make upon Flowers with regard to their Colours, which, however various and beautiful, may easily be accounted for by the Action of the Acid of the Air so often mentioned, upon a Portion of the Oil, or, as the Chymists call it, Sulphur of Plants, when expos'd to the Air upon the Surfaces of the Petals or Flower-leaves; and, indeed, if we consider that the Varieties in Colours depend entirely upon the different Reflexions, Refractions, and Suffocations, the Rays of Light undergo upon the Surfaces of Bodies, 'tis not surprising that so penetrating a thing as the Acid of the Air, acting forcibly upon Sulphur, which the Chymists, by a Multitude of Experiments, have prov'd to be the Parent of Colours, should so far alter the Disposition and Texture of its Particles, as to produce those beautiful Colours which we observe in the Petals of Flowers; and as the most minute Difference conceivable in Sulphurs or Oils will also make a Difference in the Action of the Acid thereon, the Variegation, or the Variety of Colours in the same Flower, may, from these Principles, be easily accounted for.

A great many Liquors, originally clear and limpid, will, by being expos'd to the Air, become red; and if a Bottle is fill'd half or three Parts full of these Liquors, the small Quantity of Air contain'd in the Bottle, though closely stopp'd, shall have this Effect upon them. That this is caused by the Air, is very plain; because if another Bottle is fill'd quite full with the same Liquors, and guarded carefully from the Air, the Liquors will retain their Limpidity.

And indeed nothing is more common than for Acids to change the Colours of Bodies; thus Nitre, which contains an Acid, and even the acid Smoak of Wood, will make Flesh intensely red.

Those who are concerned in the Trade of Dying, observe, that a cloudy, moist Air, very much interferes with the Vividness and Beauty of their Colours; and, on the contrary, a serene Sky exalts their Colours, and makes them more elegant. Now, it is certain, that an Acid does not so much abound in a moist, cloudy Air, as in one which is serene.

The Colours of Flowers are also liable to the very same Accident; for in cloudy, moist Weather, they are never so vivid and exalted as when the Air is serene and dry.

So much has been said already upon the Seeds of Plants, and their Generation, that 'tis unnecessary to repeat it in this Place: I shall therefore proceed to the Decay of Vegetables.

An annual Plant, when it has once brought the Seed to Perfection, has answer'd the End of Providence; and now the Vessels which bring Nourishment to the Leaves being stopp'd up, incrust'd within-side, and render'd impervious, that is, no longer hollow, the Leaves can no more perspire, but wither and drop off; mean time the Vessels of the Root and Stem undergo the same Fate with those of the Leaves; insomuch that the whole Plant dies, rots, and helps to supply the Earth with a fresh Pabulum or Food for a succeeding Generation.

There is a large Class of Plants which are called perennial, of which Sort are Trees that live for Ages; these, like annual Plants, lose their Leaves against Winter, and for the same Reason; but then the Sap-vessels in the Root and Trunk continue pervious or hollow, so that even in the Winter a sort of very languid Circulation is maintain'd, much like that by which Tortoises, Snakes, and many Sorts of Insects, are kept alive during Winter. These, at the Approach of Spring, when the Heat is increas'd, and the Earth has been for many Months laying in a Stock of Pabulum, or Food, for their Support, put out Leaves afresh, perspire and grow, till at last the Sap-vessels in the Root and Trunk are obstructed, and become impervious by Degrees, insomuch that when the Circulation is entirely stopp'd in any Part of it, the Air dissolves its Texture, and it gradually decays, dies, and rots.

As the Decay of Trees begins in the Middle, this is a strong Evidence, that the Air penetrates into their inmost Recesses; for nothing can rot, unless expos'd to the Air. And this Observation helps to confirm what we have already laid down in regard to the Air-vessels of Plants.

I have purposely omitted obviating some Objections which may be made against many things I have advanc'd, (and which I think may easily be defended) for fear of being too prolix; and for the same Reason I have not drawn all the Corollaries that the Subject would have admitted of. As I hope I have led the

Reader in a just way of Thinking upon these Subjects, his own Reflection will supply him with many philosophical and useful Truths, which I have either omitted, or, perhaps, not observ'd; and the more he pries into the Mysteries of Nature, the more will he adore the Power and Goodness of the Supreme Being, who created all Things in the Beginning, and still continues to protect them by a Series of Miracles not less wonderful than that of their first Creation; otherwise the whole Frame of the Universe would, in an Instant, be utterly dissolv'd, and all things degenerate into their original Chaos.

There is one Experiment, which should be taken Notice of before we dismiss the Subject of Vegetation, which is this: Immerse the Ends of a Parcel of cylindrical Glass Tubes, open at both Ends, in Water, and the Water will rise in these Tubes above the Surface of the rest of the Water, but always highest in the least Tube: Now, as 'tis very likely something of the same Nature happens in the Sap-vessels of Plants, this may be a great Help to Vegetation, and contribute much to the Rising of the Sap.

I shall conclude the Article of Botany with some Account of the principal Authors upon the Subject, and to these I shall add the Names of others who have wrote on the different Parts of the *Materia Medica*, not with a View of giving Information to those who are already acquainted with the Science; but with a Design to direct those, who are inclined to be more acquainted with it, to proper Authors. I shall also explain the Abbreviations of Authors Names generally used, and specify the Editions refer'd to in this Work.

Ac. Reg. Sc. implies the Histories and Memoirs of the Royal Academy of Sciences at *Paris*.

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———— 2. Vol. II. *Ib.* 1675. 4to.

———— 3. Vol. III. *Ib.* 1677.

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———— 5. Vol. V. 1680. 4to.

Act. Philos. & Transact. Philos. signifies the Philosophical Transactions.

Agricol. Agricola de re Metallica, *Basil.* 1657.

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———— *de Insect.* Aldrovandus de Insectis, *Ib.* 1638.

———— *Mus. Metel.* Aldrovandi Museum Metallicum, 1648.

———— *Ornith.* 1, 2, 3. Aldrovandi Ornithologia, Vol. I. II. III. 1640.

———— *de Pisc.* Aldrovandus de Piscibus, 1638.

———— *de Quad.* Aldrovandus de Quadrupedibus, 1639.

———— *de Quad. Biful.* Aldrovandus de Quadrupedibus Bifulcis, 1642.

———— *de Quad. Digit.* Aldrovandus de Quadrupedibus digitatis, *Ib.* 1645.

———— *Hist. Serpent.* Aldrovandi Historia Serpentium, *Ibid.* 1640.

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———— *de Balf.* Prosperus Alpinus de Balsamo, *Pata.* 4to. 1639.

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Ang. & Anguil. Simpliciter dell' Eccellente M. Luigi Anguillara, *Venet.* 1561. 8vo.

Barr. Icon. Jacobus Barrelierus. Icones Plantarum per Galliam, Hispaniam, & Italiam Observatarum, *Parif.* 1714. Fol.

———— *Spec. Insect.* Idem. Specimen Insectorum quarundam marinarum mollium, &c. *Ib.* 1714.

Baubine. See C. B. and J. B.

Bellon. de Aquat. Petrus Bellonius de Aquatilibus, Libri duo, *Parif.* 1553. 8vo. forma longa.

———— *des Oyse.* Ejusdem, L'Histoire des Oyseaux, *Paris*, 1555. Fol.

———— *Obs.* Observationes tribus Libris expressæ, *Antw.* 1605. Fol.

These were wrote originally in *French*, and were translated into *Latin* by *Clusius*.

Best. Fascic. Basilii Besseri Fasciculus rariorum, &c. *Norimb.* 1616. Fol.

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Zorn (Bartholomæus) Botanologia Medica, in *High Dutch.* BOTANICON, βότανικόν. The Name of a Plaster described by *P. Æginet.* Lib. 7. Cap. 17.
 BOTARGUM. The salted Spawn of the Mugil, or Mullet, which are prepar'd in the following manner:
 They take out the Follicles of the Spawn entire, and cover them with rough bruised Salt for four or five Hours; after this they put them in a Press, between two wooden Planks or Boards, for a Day and a Night: Then they wash them, and afterwards dry them in the Sun for thirteen or fourteen Days together, taking them into the House at Night.
 Others say they hang them up in the Smoke, but far enough from the Flame, that they may not be injured by the Vehemence of the Heat.
 They excite a decay'd Appetite, and provoke Thirst, and give a Relish to Wine. *Dale*, from *Ray's Ichthyologia*.
 BOTHER is taken by some for an Abscess of the Nostrils. *Bothor*, among the *Arabians*, has three Significations; in the largest Sense it comprehends all Tumors; in a more restrain'd one, a Tumor with a Solution of Continuity; but, in the strictest Acceptation, it signifies only small Tumors. *Castellus*.
 BOTHRION, βόθειον, [a small Ditch] is a hollow or pure Ulcer in the Black of the Eye. *Gal. Def. Med.*
 Of Ulcers in the Eye, the hollow and pure one, which is seated in the *Cornea Tunica*, is call'd *Bothrion*; but that Ulcer which is wider, but not so deep as the *Bothrion*, is call'd *Caroloma*. *P. Æginet.* Lib. 3. Cap. 22. *Actuarius de Meth. Med.* Lib. 2. Cap. 7.
 BOTIN, *Butino*, Turpentine; also the Balsam of Turpentine, when it is gather'd at a certain Season, according to its balsamic Influence. *Rulandus*.
Paracelsus mentions a distil'd Botin for extracting the *Flos Æris*. Lib. 10. *Chirurg.*
 BOTIUM. A strumous Tumor or Abscess in the Throat. *Rulandus.* See BRONCHOCELE.
 BOTOTHINUM. An obscure Term in *Paracelsus*, which he explains by the *Flower of a Disease*; whence he call. the Gout in the Feet *Locusta gummata Botothina*. Lib. 2. de *Podagric.* *Necromantia*.
 BOTOU, or BOTOUA. The same as *PAREIRA BRAVA*, which see.
 BOTRACHOU, βότερχου, in *Hippocrates*, according to *Galen's Exegesis*, is written for *Batrachou*, βάτερχου, the Genitive of βάτερχος, a Frog; and some, he says, read it *Batrachou*; so βάτερχος is expounded in *Hesychius* βάτερχος. *Facsius*.
 BOTRYITES, *Botritis*, βότρυιτις, from βότρυς, a Cluster, properly, of Grapes. A sort of burnt Cadmia, resembling a Cluster of Grapes, and collected from the upper Part of the Furnace where it is burnt; as what is collected in the lower Part is call'd *Placitis*, πλακίτις. *Gorræus*.
Schroder, Lib. 3. Cap. 19. says, that the *Botryites* is collected in the middle Part of the Furnace, the *Placitis* in the upper, and the *Ostracitis* in the lowest.
 BOTRYS, Offic. Ger. 950. Emac. 1108. Pharm. Edenb. 4. *Raii Hist.* 1. 196. *Botrys vulgaris*, Park. 89. *Botrys pleurisque Botanicis*, J. B. 3. 198. *Botrys Ambrosioides vulgaris*, C. B. 138. *Botrys sive Ambrosia*, Cod. Med. 22. *Atriplex odora seu suaveolens*, Hist. Oxon. 2. 605. *Atriplex Chenopodia Ambrosioides folio sinuato*, Hort. Monsp. 29. *Chenopodium Ambrosioides folio sinuato*, El. Bot. 406. *Tourn. Inst.* 506. *Boerh. Ind. A.* 2. 90. OAK OF JERUSALEM. *Dale*.
 BOTRYS is a Plant all over yellow, shrubby, wide spreading, and running out into a Multitude of Branches. The Seed grows quite round the Branches; the Leaves are numerous, and much like those of Succory. The whole Plant has a very fragrant Smell, and is for that Reason laid among Cloaths. It grows chiefly by the Sides of Precipices, and the Banks of Torrents.
 Drank in Wine, it has a pægoric Virtue in the Case of an Orthopnea. The *Cappadocians* call it *Ambrosia*, others *Artemisia*. *Dioscorides*, Lib. 3. Cap. 130.
 The Leaves of Oak of Jerusalem somewhat resemble the Leaves of the common Oak, whence it derives Part of its Name;

Name; only they are longer and narrower in proportion, and pointed at the End, having the like Incisions; they are somewhat rough, and of a yellowish-green Colour, of a pleasant agreeable Scent. The Stalk is striated, or chanel'd, growing about half a Yard high, much branch'd, and full of the like Leaves. On the Tops of the Branches grow long Spikes, loaded with Bunches of small, round, greenish, mossy Flowers; in which lie very small, round, and black, shining Seeds.

This Herb is of a bitter Taste, and of a strong, but not a disagreeable Smell: It is of a heating, drying, dissolving, opening, cleansing, and purgative Nature. It resists Putrefaction, and is singularly efficacious in Oppressions, Coughs, and all cold Disorders of the Breast, and Difficulties of Breathing. It is also very effectual for dissipating viscid Matter lodged in the Thorax, *Hier. Cappivacc. Pract. Medic. L. 2. C. 2. Hier. Mercurial. Med. Pract. L. 2. C. 2.* It opens Obstructions of the Liver, Kidneys, and Matrix; cures the Jaundice, prevents Dropsies, promotes a Discharge of the Menfes and Lochia, and cures Pains of the Uterus and Belly. The *Venetian Women* find the *Botrys* to be a sure and infallible Remedy against hysterical Fits, both when used internally and externally, *G. H. Velsch. Mictomim. ad Societ. Nat. Cur. Cent. 2. Obs. 35.* Fumigations of the Herb itself are excellent for provoking the Menfes, and expelling dead Fetuses, *Dom. Chabr.* The Leaves dried, reduced to Powder, and mix'd with Honey, are excellent for Vomituings of Blood, and Disorders or Ulcers of the Lungs, *Cammar. in Hort. Med. Matthioli* informs us, that by this Medicine he cured Patients, who had spit up Pieces of their Lung. A Decoction of the *Botrys*, with Syrup of Violets, is recommended, as good for Abscesses, by *J. Hearn. L. 2. Meth. ad Pract. C. 8.* In the foreign Shops there is a Conserve made of the young Leaves, and a Water distill'd from the whole Plant when it flowers: Both these are very good Medicines in Oppressions of the Breast, and in Pains of the Belly. A Lohoch of the *Botrys* is recommended as an excellent Medicine for all Disorders of the Breast, by *P. Forest. L. 16. Obs. Med. 4. in S. P. L. Guil. Fabr. H. Lin. Cent. 1. Epist. Chirurg. 49.* And the *Syrupus Diaboli* is, by *Levin Fischer. L. 3. Corpor. Med. Imper. Vol. 4.* said to be an excellent Medicine for those who are phthisical. The Herb itself, boil'd in any Lixivium, kills Vermin, and carries off other Sordes of the Head, if wash'd with it. *Joh. Theod. Tabernemont. in his Herb. L. 1.* informs us, that the Seed of this Herb, if sown with Corn, kill the little Worms which prove so hurtful to it. *Barthol. Zorn Botanolog.*

BOTRYS MEXICANA, *Cod. Med. 22. Botrys Ambrosioides Mexicana*, *C. B. Pin. 136. Raii Hist. 1. 196. Botrys Americana*, *Park. Theat. 89. Atriplex odorata suaveolens Americana*, *Alex. anag. Hist. Oxon. 2. 605. Chenopodium Ambrosioides Mexicanum*, *Tourn. Infl. 529. Elem. Bot. 406. Boerh. Ind. A. 2. 67. Eperzth, Atriplex odorata Mexicana*, *Hern. 159. MEXICO THEA.*

This is only found in *Europe*, in the Gardens of the Curious. The Herb and its Root are in Use; both which are said to corroborate the Stomach, and to relieve in Asthmas and Obstructions. A Decoction of the Root restrains Dysenteries, dissolves Inflammations, and is said to be disagreeable to poisonous Animals, and therefore to keep them at a Distance. *Dale from Hierodice.*

BOFUS, *bocia, botus barbatns*. A Chymical Vessel, otherwise called *Cucurbita*. Also a Vessel upon a Vessel, a Vessel for melting, a Crucible. *Castellus.*

BOUBALIOS, *βουβάλιος*, in *Galen's Exegetis on Hippocrates*, is expounded by *αίκυς ἄγριος*, a wild Cucumber. But *βουβάλιος*, in *Hesychius*, is expounded the wild Cucumber in *Hippocrates*, and also the *Pudendum Muliebre*.

BOUBON, *Β βόν*, in *Hippocrates*, sometimes signifies the Groin, and the Place where the Thigh-bone and Hip-bone meet; sometimes it means the Glandules on either Side, and a Tumor and Inflammation of the same. Hence the Appellation has been transfer'd to Tumors or Inflammations in the Glandules of the Neck and Arm-pits, which are sometimes called *Π βόν*. Places to this Purpose are very frequent in *Hippocrates*, as in his Books, *de Epid. Conc.* and *Lib. 2. de Morbis*; also in *Aretæus* and *Galen*.

Β βόν is also taken universally for an Inflammation of a Glandule of any kind, whether it be in the Neck, in the Arm pit, in the Groin, or behind the Ears; as *οι ἐπὶ βουβώνι πυρεταί*, "Fevers proceeding from Buboes," (Inflammations of the Glands) *Aph. 55. Lib. 4. and Lib. 4. Epid.* So *Lib. 2. Epid.* *οι καὶ τελευτοῦ βουβώνος κακοίτεροι*, "Buboes from Fevers are of a worse kind." *Galen* also *Meth. Med. Lib. 13.* says, *ὁ οὐκ ἐστὶν ἀλλὰ τῆς ἐξασθενίας δόξας βουβώνας*, "they call Tumors of the Glands *Buboes*." And in his first Book *de Diff. Febr.* *βουβών* *αὐτὰ γὰρ ἐστὶ τῶν φλεγμονῶν*, "a *Bubo* is a kind of Inflammation." See *BUBO*.

BOUCERAS, *βούκερας*, from *βός*, an Ox, and *κέρας*, an Horn, in *Galen's Exegetis*, is expounded *ἡ τριὰς*, Fenugreek; to which he adds, that *Muebrius*, in the Titles of Medicines, thought that *Anagallis* came under that Name. It is also called

βούκερας, by Contraction from *βούκερας*, in *Theophrastus*. And *Pliny, Lib. 24. Cap. 19.* says it is called *Telis*, by some *Carphos*, by others *Buceras*, by others *Agoceras*, because its Fruit is corniculated, by us (*Latins*) *Silicia*. *Columella* calls it *Siliqua*, because its Pods resemble those of the *Siliqua*. *Hesychius* says, that *βούκερας* signifies *τὸ σπέρμα τῆς τήλης*, "the Seed of Fenugreek." The Word is used by *Hippocrates* (*Lib. 1. περὶ γυναικ.*) *ὡς βούκερας*, *ἢ πρὸς αὐτῆς πυρίνης μάλλον χυλός*, "and Fenugreek, or rather the Juice of Pisan made of Wheat."

BOVILLÆ, with the antient Physicians, were the same as the *Morbilli*, or Measles, with the Moderns, in the Opinion of *Raym. Vinarius de Peste, Lib. 3. Castellus.*

BOVINA AFFECTIO. A Disease among Black Cattle, caused by a Worm lodged between the Skin and the Flesh, and perforating the same.

Something analogous to this is a cutaneous Disorder, with which some scorbutic Constitutions are frequently affected. It seems to be owing to an Obstruction of the perspirable Matter, which concretes in the Pores of the Skin, and forms a sebaceous Substance, resembling a Worm with a black Head, which may be squeez'd out; and sometimes causes a small Suppuration, and is discharg'd along with the Pus. I never heard of these being attended with any great Inconvenience. But as they are Blemishes, I have given a Preparation of Gall, which is said to cure them, under the Article *BILIS*, from *Homberg*.

BOVISTA. The same as *LYCOPERDON*, which see

BOULIMUS, *βούλιμος*, from *βός*, a Particle which in Composition augments the Sense, and *λιμός*, Hunger, is a Disease which causes a Desire of Food at very short Intervals. Persons thus affected faint, and fall down, lose their Colour, are cold in their extreme Parts, feel Oppression at their Stomachs, and have a weak Pulse. *Galen. Def. Medicæ.*

Boulimos, as the Name itself indicates, is a great Hunger. It proceeds, as Reason seems to inform us, from the immoderate Heat and Weakness of the Mouth of the Stomach, which causes the Patients, unless supported with an excessive Quantity of Food, to faint and fall down; under which Misfortune there is hardly any so ignorant, but knows how to have recourse to such Smells as are proper to recal and recollect the dissipated vital Spirits. Among such Things as remarkably affect the Sense of Smelling, it is usual to offer Bread sop'd in Wine, roasted Swines Flesh, or Kid, and, in general, all such things as have a nidorous and well-favour'd Smell. They compress the Extremities, prick them in every Part, rub their Ears, and pull them by the Cheeks, and by the Hair. When they are come to themselves from the Lipothymy, the most proper Thing to be given them in the first Place, is Wine, and, after that, other Food. In our future Management, we are to restore them by such Meats as are of good and quick Nutrition, but difficult of Alteration and Digestion; they are also to be treated with such things as refrigerate and strengthen; by this Method they are greatly benefited, and, in Process of Time, are restored to a good Temperament. Some for a *Boulimos* have given Opium in cold Water, in order to allay the excessive Heat; but I would advise you to be cautious how you give Opium, but rather let the Patients take such Food as is difficult of Concoction and Alteration. I knew a Woman who eat a vast Variety of Meats, and in immoderate Quantities, and digested them all, and never said she was satisfied, but felt a Gnawing at her Stomach, and a Pain in her Head; at last, she took the Cathartic Powder, called *Hiera*, which brought away from her by Stool a Worm supposed to be above twelve Cubits in Length; after which her immoderate and furious Appetite ceased, and it appear'd, that it was not a *Boulimos*, but this mischievous Animal, which compelled her to take such Quantities of Food, and consume it all. *Alex. Trallianus, Lib. 7. Cap. 4.*

Paulus Aegineta gives much the same general Account of a *Boulimos*, as this of *Alexander's*.

In the *Caninus Appetitus*, there is a Desire after much Food, and great Quantities are eaten, which, oppressing the Stomach, are again discharg'd by Vomit: The Patient being thus relieved, his Appetite returns, which having gratified, he finds himself obliged to ease his Stomach again, like a Dog, by vomiting.

Oftentimes this Disorder has procur'd a *Boulimos*, a deep Sopor, a Lientery, Dropsy, Atrophus, and Death itself.

In a *Boulimos*, the Patients at first labour under a great Hunger, which however, does not last long. At every turn also they faint away, and at the same time their Breath fails them; in which Case a Syncope may be feared to be at Hand, followed by Death. *Lommi Med. Obs.*

Boulimos is sometimes called *Phagelena*, *φαγέλανα*, which is also a Name for eating, spreading Ulcers; and *Fames canina*, because the Persons affected have their Appetites vehemently set upon their Food, after the manner of Dogs.

It is to be observ'd, that some make a Distinction between *Boulimos* and *Fames canina*, whereas others take them for the same.

fame. The former say, that in the *Fames canina* the Patient is taken with Vomiting, as Dogs are, after eating too great a Quantity of Food; tho' some are seized with a Flux of the Belly instead of Vomiting, Nature that way discharging the Superfluity of Aliment, which the Stomach was incapable of digesting; but the *Boulimos* is not attended with Vomiting, but sometimes with a Lipothymy. Some there are who labour under this insatiable Desire of eating, and yet are not molested with Vomiting, nor a Flux; but thoroughly digest all the Food they take, and are sick if they are not readily supplied with more. *Sennertus* relates a Story of a Student, a Man of a black Complexion, who would be eating not only in the Day-time, but in the Night, and perfectly digested whatever he took, without Vomiting; nay further, he could not be satisfied with delicate Food, but long'd for coarser; for which Reason he did not eat such Bread as was made by the Bakers, but what was bak'd by the Peasants in the neighbouring Villages, as being more solid and substantial. He would often eat a great Number of raw Garden Parsnips in the Morning, without the least Injury.

Galen makes the immediate Cause to be, first, a vicious and acid Humour stimulating the Stomach; and, secondly, a want of Nourishment from too great a Digestion.

The vicious Humours lodged in the Stomach excite an immoderate Hunger, because by their excessive Coldness, Acidity, and Austerity, they cause a Constriction, Corrugation, and Vellication of the Mouth of the Stomach, and so excite a Sensation like that of natural Hunger.

The perpetual Craving after Food is sometimes owing to a Defect of Nourishment, on account of excessive Evacuations, by a Hemorrhage, Flux of the Belly, Vomiting, Sweating, or the like, or from too great a Consumption of the alimentary Substance, effected by the immoderate Heat of the Parts, the Thinness of the Humours, the rare Contexture of the Body, and Laxity of the Pores, want of Sleep, Bathing, immoderate Exercise, or excessive Venery; all which Things cause a great Dissolution of the alimentary Matter, and consequently a great Inanition, and want of Nourishment; whence the Food is hurry'd out of the Stomach with greater Speed than it ought to be.

Sometimes this Affection is owing to Worms consuming the Chyle, as in the Case related by *Trallian*.

The diagnostic Signs of this Disorder are sufficiently evident, as well to the Patients as Attendants, who cannot but observe a depraved and excessive Appetite, which compels them to receive into their Stomachs an immoderate Quantity of Victuals, which afterwards proving burdensome and oppressive to Nature, are thrown up again by Vomiting, in which Case the Distemper is the *Fames canina*; or, if there be no Vomiting, the Patient is seized with a Lipothymy, and then it is a *Boulimos*.

The different Causes of this Distemper are distinguishable by the Circumstances, which are antecedent, attendant, and consequent to it. Acid Evacuations and Vomitings, crude Stools, and want of Thirst, are Signs of an Acid abounding in the Stomach. In Defect of Nutrition, the Patients are emaciated; and lastly, the Signs of Worms are to be taken from their proper Symptoms.

As to the Prognostics of this Disorder, if it depends wholly on external Causes, there is no Danger, provided these are speedily remov'd; and what proceeds from Worms carries but little Danger in it, because their Effects cease as soon as they are destroy'd. In Pregnancy, where an inordinate Appetite is frequent, there is no Danger to be apprehended from it.

But the Distemper is very dangerous when followed by large Evacuations or Colliquations of the Body; and especially, when after receiving Food, while the Stomach is yet full, the Patient is seized with fainting Fits; for when those Things, which ought to give most Relief, prove of none or ill Effect, it is a Sign of a great Disorder in the Tone of the Stomach.

So also the canine Appetite, when the Vomiting or Flux is obstinate, is not void of Danger; for it commonly degenerates into a Cachexy, Dropsy, Lientery, Atrophy, and other fatal Distempers.

For the therapeutic Part, since the *Fames canina* generally takes its Rise from redundant Humours inherent and lodging in the Stomach, we are to use evacuant and alterative Remedies, not omitting such as are proper to strengthen the affected Part.

Evacuation is to be perform'd either by Vomits or Purges, and that by means of such Remedies as are proper for those who labour under a want of Appetite; for, though these Affections are contrary one to another, yet they are usually produc'd by the same Humours, differing only in Degrees of Frigidity, and some very different secondary Qualities which affect the Stomach after a different manner. A Remedy of this kind, which is very much commended by *Galen*, is *Elisra* made into Pills, in the following manner.

Take of choice Aloes macerated [*nutritæ*] in the Juice of Wormwood, one Dram; Troches of Agaric, two Drams; Rhubarb pulverized, and sprinkled with White-wine, one Dram; Nutmegs and Spikenard, each half a Dram; Salt of Tartar, Mastic, and Cinnamon, each one Scruple; and with Syrup of Wormwood make them into a Mass for Pills, six of which gilt are to weigh a Dram, and are a Dose in the Morning, if the Patient has a mind to purge thoroughly; or three of them may be taken two Hours before Dinner, two or three times in a Week.

Such Remedies also as heat and strengthen the Stomach, both internal and external, are of very great Service: Of this Nature are Syrup of *Pontic* Wormwood, taken to the Quantity of an Ounce in the Morning fasting, for some Days together; or, instead thereof, Wormwood-wine may be substituted. Or,

Take Conserve of Rosemary-flowers, Mint, Lemon-peel preserved, Nutmegs preserved, each half an Ounce; Chebule Myrobalans preserved, Number one; Confectio Alkermes, three Drams; the inner Membrane of Hens Gizzards prepared, two Drams; Cinnamon pulverized, and Aromaticum Rosatum, each one Dram; make them into an Opiate with Syrup of Mint, or into a Conserve with Sugar of Roses. Let it be used in the Morning, drinking after it a little generous Wine.

Salt of Wormwood, or Chymical Oil of Mint, may very properly be added to the above-recited Remedies: Or,

Take of Salt of Wormwood, and Orange-peel, or either of them, half a Dram, and take them in Wine or Broth.

The following Mixture is also very effectual:

Take of Syrup of Quinces, and preserved Lemon-peel, each two Ounces; Cinnamon-water, one Ounce; Oil of Sulphur, twelve Drops; mix, and give a Spoonful at proper Intervals.

In a very great Frigidity of the Stomach, Cinnamon-water by itself is of excellent Use; or it may be mixed with Syrup of Wormwood, of Mint, or of Coral, to which Ambergrise may properly be added.

External Remedies are Fomentations, Liniments, and Plaisters, such as the following.

Take of the Root of Cyperus, Galangal, Florentine Orris, dry'd Lemon-peel, each two Ounces; the Leaves of Mint, Hyssop, Sage, Rosemary, and Majoram, each one Handful; Anniseeds, Bay-berries, Nutmegs, Cloves, and Cinnamon, each three Drams; Flowers of Stæchas, Schoenanth, and Rosemary, each one Pugal: Cut and bruise them, and inclose them in two Bags, which must be macerated in generous Wine, and by turns applied warm to the Stomach. Or,

Take Oil of Wormwood, Oil of Mint, and of Hops, each half an Ounce; Oil of Nutmeg, two Drams; Lignum Aloes, Mace, Cinnamon, each a Scruple, with a little Wax; make a Liniment. This may be improved by adding of Oil of Cloves, six Drops; of Musk and Ambergrise, each seven Grains: Or a Liniment may be made of Oil of Nutmegs, and Balsam of Peru; or of Oil of Wormwood, and Balsam of Peru.

For a Plaister.

Take Mastic, one Ounce; Aromaticum Rosatum, one Dram; Oil of Nutmegs, a sufficient Quantity; mix, and make a scutiform Plaister, which apply to the Region of the Stomach.

Crato greatly recommends the following Plaister:

Take of Ladanum, two Ounces; Wax, four Ounces; Oil of Nutmegs, three Drams; make them into a Mass for a Plaister, and add of Tacamahac and Mastic, each one Dram.

Galen, Lib. 7. Meth. Med. advises not to suffer Plaisters of this kind to continue long on the Place, because by long Continuance they dissolve the natural Heat.

Besides the above-mention'd Medicines, pure Wine alone, drank in sufficient Plenty, is a most powerful Reliever of Hunger, according to the Aphorism of *Hippocrates*, 21. *Sett. 2.* And the Spirit of Wine, commonly called *Aqua Vitæ*, has still a more powerful Effect that way.

Such

Such Medicines as mightily relax and moisten the Stomach, and correct the Acidity of the Humour, have a peculiar Virtue, in taking off the Sense of Hunger. Of this Sort are all pinguious and oleaginous Things; as Fats, Oils, and the Extremities of Animals. Thus *Villanovanus* relates, that a certain Man, affected with this Disorder, eat hot Bread dipt in Lees of Oil; and that a Woman, in the like Case, drank twice the melted Fat of Beef with a like Quantity of hot Oil; and that both these Patients contracted so great a Loathing of Food, that neither of them eat any thing for five Days, and so got rid of their Distemper.

Narcotics, by blunting the too exquisite Sense of the Stomach, have a Virtue of moderating the *Fames canina*. Among other Remedies of this sort, *Venice Treacle*, when new, is of common Use; because, besides its narcotic Virtue, it has a Power, as an Alexipharmac, of correcting the malignant Quality of the Humours, which some suppose to belong to this Affection.

But, because Narcotics are seldom, and never without Necessity, to be used, old *Venice Treacle* is to be used at other times, as well for the Reasons above given, as for the sake of corroborating the Parts.

Ambergrise to the Quantity of five or six Grains, taken in a poach'd Egg, not only strengthens the Stomach, but is supposed to be endu'd with a specific Virtue against this Disease. *Riverius, Prax. Med.*

So far *Riverius*; and it must be confess'd, that the most rational Way of curing a Disorder, which is caus'd by an acrid Humour irritating the Stomach, is, first, to evacuate such Humour, or correct its Acrimony; and then to restore the Stomach, and the Organs employ'd in Digestion, to their natural Tone and State, that no more may be generated.

BOUNIAS, *βουνίας*, a Species of *Napus*, which has a round Root, and delights in *βάρεις*, or rugged Places. *Blancard. See BUNIAS.*

BOUSTHE, *βούσθη*, a corrupt Word, tho' found, as *Foesius* says, in all the Copies of *Hippocrates*. It is in a Passage of his *παράγγελλαι*, which is, *ἀπισταίμι δ' ἂν θαρσαλέως βούσθην*. Here plainly appears, says *Foesius*, a Mistake, and all Translators read it *βουθύν*, rendering the Place thus: "I would with Confidence ask Assistance," or, "I would confidently desire them to give their Assistance." For the Subject of the Discourse are those Physicians, who, being destitute of a Method of curing, insinuate themselves into popular Favour by pompous Words. With such Physicians *Hippocrates* declares himself unwilling to hold a Conference concerning a Method of Therapeutics, but rather desires Assistance from them, or calls upon them to perform, by their Actions, what they so confidently pretended to by their Words.

BOXUS, Mistleto, growing on Trees, such as Mistleto of the Oak. *Castellus from Dornæus.*

BRABE, in *Oribasius*, is an Herb, a Cubit high, shooting forth thin Branches on both Sides, with Leaves like those of Dittander, but softer and whiter. At Top it bears an Umbella like that of Elder, with white Flowers. *Oribas. Med. Coll. Lib. 11.*

BRABYIA, *τὰ βράβυλα*, large, sweet, black-azure Plums, commonly call'd *Damascene* and *Hungarian* Plums. They are reckon'd by *Galen, Lib. 2. de Alim. Fac. cap. 38.* amongst Aliments which afford but little Nourishment to the Body, and are of bad Juice; but the boil'd Juice is accounted amongst Stomachic Medicines by the same Author, *Lib. 6. de C. M. 8. l. cap. 2.*

BRACHERIUM. A Surgeon's Bandage and Truss for an Hernia. *Castellus. Scultetus* gives Figures of two of these, *Tab. 39. Fig. 6. and 7. of his Armamentar. Chir. printed 1657.*

BRACHIA, *βραχίονες*. The Branches of Plants, especially Trees; so call'd because they are extended like the *Brachia* (Arms) of a Man. *Blancard.*

BRACHIAEUS. There are two Muscles which go by this Name. The first is the *Brachieus internus*.

This derives its Name from its Situation, lying partly under the Biceps. It ariseth fleshy from the internal Part of the Os Humeri, at the Insertion of the Deltoides and Caracobrachialis Muscles; and, descending over the Juncture of the Cubit with the Arm-bone, it's inserted, partly fleshy, and partly tendinous, to the superior and fore Part of the Ulna. This helps to bend the Arm.

The second is the *Brachieus externus*. This seems to be the third Beginning of the Gemellus. Its Origination is continu'd from above the Middle of the Insertion and back Part of the Os Humeri to its Cavity, which receives the Olecranon in the Extension of the Cubit, where, joining with the tendinous Outside of the Gemellus, it is inserted into the superior and external Part of the Ulna, call'd Olecranon, and Ancon, or the Elbow. *Causer. See GEMELLUS.*

BRACHIALE. The same as *CARPUS*, which see.

BRACHIUM, *βραχίον*, in *Hippocrates*, signifies the Bone which lies between the Cubit and the Joint of the Shoulder,

Galen, in the Beginning of his second Comment on Hippocrates of Fractures.

But the fore Arm, as we express it, the *Avant Bras* of the *French*, signifies properly that Part of the superior Extremities which lies betwixt the Elbow and Wrist.

That the Reader may not lie under a Necessity of turning to too many different Articles, for an Account of the Parts belonging to the Arm, I shall, in this Place, take into Consideration the entire superior Extremities, and describe particularly the Bones, Cartilages, and Ligaments, belonging to these.

The Os Humeri, or Bone of the Arm, is both longer and thicker than any other Bone of the upper Extremity. It is situated under the Acromium, along the lateral Part of the Thorax, from which, however, it may be remov'd to a considerable Distance in all Directions. Its Figure is irregularly cylindrical, and it is thick at one End, and broad at the other.

It is divided into the Body and two Extremities, or into an upper, middle, and lower Part.

The upper Part is generally call'd the Head of the Os Humeri, and the Part immediately below that, is call'd the Neck.

In the Head, we consider a Half-globe obliquely inclined, crufted over with a smooth Cartilage; two Tuberosities, one large, terminating upward in a Point, over-against the Half-globe; the other small, placed laterally between the large one and the Half-globe: A Chanel or Groove between the two Tuberosities; four muscular Impressions, three of which are on the large Tuberosity, one in the Apex, one on the Side opposite to the Groove, and the third lower down on the same Side, over-against the small Tuberosity upon which the fourth is found. Of these four Impressions, that on the small Tuberosity, and the second of the other three, are the largest. All these Parts of the Head of the Os Humeri, are one Epiphysis in Children, of which very plain Marks remain sometimes in an advanc'd Age.

The Chanel, or Groove, between the two Tuberosities, is continu'd downwards, in an oblique Direction, thro' one Quarter of the Length of the Bone; and there becoming rough, it forms a muscular Impression, not always equally sensible. The Edges of this Chanel are two Ridges, or prominent Lines, continu'd down, as it were, from the two Tuberosities. That from the great Tuberosity is the most considerable, and is continu'd down to the Middle of the Bone, where it is lost in a long, broad, rais'd muscular Impression, more or less rough. The other, which comes from the small Tuberosity, is less prominent, and shorter. At the Side of this Ridge, toward the lower Part, are two other narrow, longitudinal, and superficial muscular Marks, one above the other, the lower Extremity of the first reaching down on the fore Side of the upper Extremity of the second.

The middle Part, or Body of the Os Humeri, comes nearer to a cylindrical Figure than the Extremities. It is a little rais'd at the rough Eminence, or Impression, already mention'd. On each Side of this Eminence is another muscular Impression, which uniting immediately below it, it appears to be inclos'd between them as between the two Prongs of a Fork. On that Side which answers to the Middle of the Half-globe, we see likewise a longitudinal muscular Mark; and about the Middle of that Side which is even with the great Tuberosity, there is an oblique hollow Turning, of a considerable Length and Breadth, which, running down by the Side of the fork'd Impression, makes this Part of the Bone appear contorted.

The lower Extremity of the Os Humeri is triangular from its very Beginning, and from thence grows very broad and flat, being bent a little near the End, towards that Side which answers to the small Tuberosity in the upper Extremity. It is divided into three Sides, two anterior, and one posterior, which is the broadest; and into three Angles, one anterior, and two lateral.

At the End of this broad Extremity are two Tuberosities; one short and prominent, answering directly to the Middle of the Half-globe; the other oblong, rough, and resembling a Crista, which answers to the Apex of the great Tuberosity of the Head. The short Tuberosity is call'd the internal Condyle, the other the external Condyle.

Between these two Condyles, on the very lowest Part of the concave Side of this Extremity, are two articular Eminences; one double, like a Pulley, next the short Condyle; the other rounded, like a small Head, next the long Condyle. The Pulley has a great and small Edge, with a Depression between them. The small Edge is lost in the round Eminence, or Head; the great one is gradually widen'd, and ends in a sharp Circumference. This Pulley is situated obliquely; for, on the concave Side, it approaches toward the short Condyle, and, on the other, it is turn'd from it.

Three Fossulae are likewise observable in this lower Part of the Bone; two anterior, one immediately above the Pulley, the other above the small Head; and one posterior, which is very large, and situated likewise immediately above the Pulley. In Children, the Pulley, the small Head, and the short Condyle, are Epiphyses.

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The outer Substance of this Bone is compact, especially in the middle Part, within which there is a large tubular Cavity, containing a reticular Texture of bony Filaments. The Out-sides of the Extremities are less solid; and their inner Substance is cellulous.

The particular Situation of this Bone deserves well to be consider'd, because we are often misled in forming an Idea of it, by viewing the Bone itself separated from the Trunk of the Body, by the Figures which have been given of it, and by the undue Application of the Terms External, Internal, Anterior, and Posterior, to the different Parts thereof; which Mistakes may be of very bad Consequence in many surgical Cases.

When we examine the Os Humeri, as lying along either Side of the Trunk, in its natural Situation, the Head will be found so dispos'd, as that the Half-globe is turn'd inward and backward, answering to the Situation of the Glenoide Cavity of the Scapula, the great Tuberosity outward and forward, the Channel between the two Tuberosities almost directly forward, the long Condyle, said commonly to be external, turn'd as much forward as outward, and the short Condyle, call'd the Internal, turn'd as much backward as inward.

This Bone is articulated above with the Glenoide Cavity of the Scapula, by Enarthrodia, which is much plainer in the fresh Bones than in the Skeleton; and below, with the two Bones of the fore Arm.

The Uses of this Bone are generally well enough known. The Explication of all its different Motions presupposes the Knowledge of the fresh Bones, and of their Ligaments and Muscles.

The BONES of the FORE ARM; and, first, the ULNA.

The fore Arm is made up of two long Bones, whereof one is nam'd Cubitus, or Ulna; the other Radius.

The Ulna is irregularly triangular, diminishing in Thickness from one End to the other. It may be divided into the Body or middle Part, and two Extremities, one great, the other small.

In the great Extremity we observe two Eminences, one large, call'd Olecranon or Ancon; the other small, call'd Corone, or the Coronoide Apophysis; and two Semilunar or Sigmoide Cavities; one great, the other small.

The Olecranon is a large Apophysis ending in a rough Tuberosity, and an obtuse Point. The Tuberosity makes the Corner of the Elbow; the Point is lodg'd in the posterior Cavity of the lower Extremity of the Os Humeri, when the fore Arm is extended. Next under the Tuberosity is a flattish, oblong, triangular Surface, on the Outside of which is another of the same kind, but longer, and a little hollow, together with a muscular Fossula.

The Coronoide Apophysis is prominent, and a little pointed, resembling a broad short Beak. It is receiv'd into the anterior Cavity above the Pulley, at the lower Extremity of the Os Humeri, when the fore Arm is bent.

The great Sigmoide Cavity lies directly between these two Eminences, reaching from the Point of one to the Point of the other. It is articular, cover'd with a smooth Cartilage, and divided thro' its whole Length by a middle angular Line; being thus suited exactly to the Pulley of the Os Humeri, upon which it moves obliquely; these two together making a most perfect Ginglymus, as well in respect of their Structure as of their Use. The Half-cavities on each Side the angular Line are also divided transversely by another Line a little hollow; which terminates at the Middle of each Edge of the Cavity; by a very small Notch.

The small Sigmoide Cavity, which may likewise be term'd transverse or lateral, is a sort of transverse Notch in the inferior Portion of one Edge of the great Sigmoide Cavity, at the Side of the Coronoide Point, directly opposite to the muscular Fossula already mention'd. It is cover'd with a Cartilage as well as the great one, of which it appears to be a true Continuation, and it belongs to the Articulation of the Radius. Near this Cavity, directly under the Coronoide Apophysis, there is a very rough muscular Impression, sometimes rais'd like a Tuberosity.

This upper Extremity is oblique, and its Obliquity answers to that of the Pulley in the Os Humeri.

The small Extremity is cylindrical, of a less Diameter than any other Part of the Bone. It may be reckon'd a kind of Neck, ending in an inverted Head, flat at Top, and of a cylindrical Circumference, both which are cover'd with the same smooth Cartilage; and the Circumference is broader on the Side of the Coronoide Apophysis, and small Sigmoide Cavity, than any-where else. From the Head runs down a short Styloide Apophysis, on the Side of the Tuberosity of the Olecranon; distinguish'd from the rest of the Circumference by a small Notch.

The middle Portion, or Body of the Ulna, is divided into three Sides and three Angles. One of the Sides is narrow and rounded, one broad and hollow, and the third flat, and mark'd with an oblique Line on its upper Part. The narrow Side answers to the Tuberosity of the Olecranon, and is cover'd only by the common Integuments. The other two Sides are distinguish'd from the former by two blunt Angles; and they unite

at a sharp Angle, which lies opposite to the rounded Side, and answers to the Point of the Coronoide Apophysis. The hollow Side is even with the small Sigmoide Cavity, and the flat Side opposite to it. These two Sides give Insertions to many Muscles; and the sharp Angle, to what is call'd the Interosseous Ligament. At the Top of this Angle there is a narrow, oblong, muscular Impression. The Angle common to the rounded and flat Sides ends below in an oblong, uneven, muscular Eminence.

The Substance of the Ulna is much the same with that of the Os Humeri, already describ'd. The Tuberosity of the Olecranon, and the small interior Head, with its Styloide Apophysis, remain for a long time Epiphyses in some Subjects.

It is connected with the Pulley of the Os Humeri, by an angular Ginglymus; with the two Extremities of the Radius, by a compound lateral Ginglymus; and with the Hand, by Ligaments, and not by Articulation.

The Situation of this Bone may be consider'd two ways; either when the fore Arm is extended, and lies along the Side of the Trunk; or when it is bent, and lies on the lower Part of the Breast. The first Situation appears to be most commodious for determining what Parts of the Bone are to be call'd anterior, posterior, superior, inferior, external, and internal; but the second seems most natural, as being the most common in living Bodies, whether sitting or standing, and has accordingly been follow'd by some of the Antients.

The RADIUS.

The Radius is nearly of the same Length with the Ulna, bigger at one End than at the other, irregularly triangular, a little bent, and situated along the Side of the Ulna. Its Name is taken from the Resemblance it bears to the Spoke of a Wheel.

We are to consider in the Bone two Extremities, and a middle Portion. One Extremity is small, and like a kind of Head set upon a Neck; the other is large, resembling a Pedestal or Basis; and therefore it might be divided into a Head, Body; and Basis.

The Head, or small Extremity of the Radius, is very short or low, the Top of it is concave, and the Circumference cylindrical; and both the Glenoide Cavity and the Circumference are cover'd with the same smooth shining cartilaginous Crust; and about one Quarter of the Circumference is broader than the rest. The Neck is small, and its Situation a little oblique. It ends by a lateral Tuberosity, which lies directly under the broad Part of the Head, being rough in the Middle and on one Side, and smooth and superficially cartilaginous on the other.

The Basis, or great Extremity of the Radius, is much broader than it is thick, and has two broad Sides, and one narrow. One of the broad Sides is a little hollow, and pretty even; the other is unequally convex, and divided by longitudinal Eminences, or bony Lines, into three or four longitudinal Channels, much more distinct in fresh Bones than in the Skeleton. The narrow Side is concave lengthwise, and between its Edges, and those of the two broad Sides, two Angles are form'd, by which the three Sides are distinguish'd; and, opposite to it, the broad Sides form a common Edge, and a third Angle. This narrow Side ends in a semilunar Cavity, border'd with a smooth Cartilage, and lying almost in the same Direction with the Tuberosity. The broad Sides end at their common Angle, by an obtuse Point or Production, which has been call'd the Styloide Apophysis of the Radius, and is really a Continuation of one of the bony Lines.

The whole Basis ends in an oblong, triangular, Glenoide Cavity, the Cartilage of which is continu'd over the hollow Edge of the narrow Side. This is an articular Cavity, resembling an Arch, and ending on one Side at the Styloide Apophysis, and hollow'd on the other, by the Cavity of the narrow Side. It appears divided into two Portions by a small transverse Line, and in the natural State the hollow'd Side is lengthen'd out by a cartilaginous Production, the Description of which belongs to the History of fresh Bones.

The Middle, or Body of the Radius, is a little incurvated, the Concavity lying between the Tuberosity in the Head, and semilunar Cavity in the Basis. It has three Sides, one rounded, which forms the convex Side of the Curvature; and two concave; three Angles, two of which are obtuse; distinguishing the two concave Sides from the convex; and the third sharp, lying between the two concave Sides, opposite to the convex Side. In each of these Sides there are several muscular Marks.

The Substance of this Bone is like that of the Ulna. The Head and Basis are Epiphyses in Children, and, in some Subjects, remain such for a long time afterward.

The Radius is connected with the Ulna, the Os Humeri, and Carpus. It is articulated with the Ulna, at its two Extremities, by a double lateral Ginglymus; the cartilaginous Circumference of the Head turning in the small Sigmoide Cavity, and the semilunar Cavity in the Basis turning upon the small Head, at the lower Extremity of the other Bone; and thus the small Extremity of one Bone is join'd to the great Extremity of the other.

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It is articulated with the Os Humeri, by the Application of the Cavity in the Top of its Head to the small Head at the lower Extremity of the other Bone. By this Conformation it would be capable of moving in all Directions; but, as it is ty'd to the Ulna at both Extremities, its Motions on the small Condyloide Head, at the lower Extremity of the Os Humeri, are confin'd to two kinds; that of Rotation, when it turns on the Sides of the Extremities of the Ulna, and that of Flexion and Extension, in common with the Ulna; and both these Motions may be perform'd at the same time.

The Articulation of the Radius with the Bones of the Carpus shall be explain'd in describing these Bones.

The BONES of the HAND; and, first, the BONES of the CARPUS.

The Hand is the last Part of the upper Extremity, and is divided into the Carpus, Metacarpus, and Fingers. It may be further divided into the concave and convex Side. The concave Side is likewise call'd the Inside, because it is commonly, and, as it were, naturally, turn'd toward the Body, and sohid. The convex Side is, for the same Reason, nam'd the Outside, as being, for the most part, turn'd outward, and expos'd to View. The first is also nam'd the Hollow or Palm of the Hand, the other the Back of the Hand.

The Carpus, or Wrist, consists of eight small, unequal, and irregular Bones; and, taken all together, they represent a sort of Grotto (*Grote*) of an irregular quadrangular Figure, and connected principally with the Basis of the Radius. Consider'd in this manner, the whole Collection of them has two Sides, and four Edges. One of the Sides is convex and external, the other concave and internal. The Convexity of the Outside is pretty uniform, but the inner or concave Side has four Eminences, one at each Corner. One of the four Edges touches the fore Arm, and is, as it were, the Head of the Carpus; another Edge may be term'd the Basis, and touches the Metacarpus; the third is toward the Point of the Radius, and the fourth toward the Point of the Ulna. The first of these last I shall call the small Edge, and the other the great Edge.

The Bones of the Carpus are divided into two Rows; the first of which lies next the fore Arm, the second next the Metacarpus. Each Row consists of four Bones, but the fourth of the first Row lies, in a manner, out of its Rank. Each Bone has several cartilaginous Surfaces for their mutual Articulations; and, in some of them, for their Articulations with the Radius, and Bones of the Metacarpus and Thumb.

It is to no purpose to distinguish the three ordinary Dimensions in any of these Bones, except one; but, in most of them, we may consider six Sides, one external, turned toward the convex Surface of the Carpus; one internal, toward the concave Surface; one toward the fore Arm, which I call the brachial Side; one toward the Fingers, which I call the Digital Side; one toward the Point of the Radius, or the Radial Side; and one toward the Point of the Ulna, or the Cubital Side.

Of these Sides some are bony, others cartilaginous or articular. These last I shall call Sides, the other Surfaces, as being Portions of the common Surface of the Carpus in its natural Situation.

To distinguish these eight Bones from each other, they are call'd first, second, third, and fourth Bones of the first or second Row, beginning to count from the Radius or Thumb.

Lyfurus has been at the Pains to give a particular Name to each of them: He calls the first Bone of the first Row Os Scaphoides, or Naviculare; the second, Os Lunare; the third, Os Cuneiforme; the fourth, Os Pisiforme: The first Bone of the second Row, Os Trapezium; the second, Os Trapezoides; the third, Os Magnum; and the fourth, Os Unciforme.

OS SCAPHOIDES.

The first Bone of the first Row is term'd *Scaphoides* in Greek, and *Naviculare* in Latin, from its Resemblance to a small Boat. Next the Radius it has a convex Side, by which it is articulated with the Basis of that Bone; and a Tubercle, which is one of the four Eminences on the concave Side of the Carpus. Toward the Thumb it has two Half-sides; a large one for the Os Trapezium, and a small one for the Os Trapezoides. It has likewise a hollow Side for the Os Magnum, and a small semilunar Side for the Os Lunare. The inner and outer Surfaces are rough.

OS LUNARE.

The second Bone of the first Row is call'd *Lunare*, because one of its Sides is in form of a Crescent. The articular Sides in this Bone are four in Number; one convex, for the Basis of the Radius; one semilunar, for the Os Scaphoides; one almost triangular, for the Os Cuneiforme; and one hollow, which, with the hollow Side of the Os Scaphoides, forms a Cotyloide Cavity for the Head of the Os Magnum. The convex Side, together with that of the Os Scaphoides, forms an oblong Convexity, answering to the oblong Concavity in the Basis of the

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Radius. The outer and inner Surfaces are small and rough. This Bone would be better nam'd Os Semilunare.

OS CUNEIFORME.

The third Bone of the first Row, call'd *Cuneiforme* from its Figure, appears rather like a Wedge sticking between the two Rows. It has a rough Surface, with a small Tubercle upon it, which forms the greatest Part of the cubital Edge of the Carpus; and four articular Sides, whereof one is convex, which completes the articular Convexity of the Carpus; one orbicular and internal, or on the concave Side of the Carpus, on which the Os Pisiforme is set; and two which make an Angle between them; one for the Os Semilunare, and the other for the Os Unciforme.

OS ORBICULARE.

The fourth Bone of the first Row, call'd *Orbiculare*, *Pisiforme*, and *Lenticulare*, from its Figure and Size, is irregularly round. It has but one cartilaginous Side, irregularly orbicular, the Border or Circumference of which represents a sort of narrow Collar. The rest of the Bone is rough, convex, and irregularly round, making one of the four Eminences on the concave Side of the Carpus. This Bone, and the Os Cuneiforme, may be suppos'd to make a third Row distinct from the other two.

The four Bones of the second Row lie all in a Line, the first being articulated with the Thumb, the rest with the Metacarpus.

OS TRAPEZIUM.

The first Bone of the second Row is nam'd *Trapezium*, as being suppos'd to be of an unequal square Figure. Its outer Surface is rough, and makes a Portion of the convex Side of the Carpus. On its inner Surface is an oblong Eminence, which makes one of the four Eminences on the concave Side of the Carpus; and, on the same Side, it has a Groove or Channel. There is likewise a small Tubercle on the outer Surface.

It has several articular cartilaginous Sides; one Brachial, one Digital, and two Cubital Sides.

The Brachial Side, which is hollow, is articulated with the Os Scaphoides; the Digital, with the first Phalanx of the Thumb; one of the Cubital Sides, with the Os Trapezoides, and the other with the first Bone of the Metacarpus.

The Side which is articulated with the first Phalanx of the Thumb, appears to be made up of two superficial Sigmoides or Semilunar Half-sides, distinguish'd by an Eminence of the same Figure, being each more hollow toward the Sides than at the Middle, which makes a Portion of a sort of superficial Pulley, with the Edges much worn.

One of the Cubital Sides, which is articulated with the Os Trapezoides, is large; the other, which joins the first Metacarpal Bone, is small.

OS TRAPEZOIDES.

The second Bone of the second Row deserves the Name of *Pyramidale*, rather than *Trapezoides*, being a kind of Pyramid with the Point broke off. Its Basis makes a Portion of the outer or convex Side of the Carpus, and its Point a Part of the concave Side.

It has several articular Sides; one Brachial, which is the least of all, and articulated with the Os Scaphoides; one Digital, of a considerable Length, notch'd on each Side, and divided into two Halves, by a sort of middle Line or Angle, which gives it the Appearance of a Pulley, articulated with the Basis of the first Metacarpal Bone; one Radial, irregularly triangular, and articulated with the Os Trapezium, and one Cubital, a little hollow, and articulated with the Os Magnum.

OS MAGNUM.

The third Bone of the second Row, call'd *Os Magnum*, is the largest of all the Bones of the Carpus. It is of a considerable Length, and has a kind of articular round Head, which is receiv'd into the Cotyloide Cavity form'd by the two first Bones of the first Row; and this Articulation is capable of a small Degree of Flexion and Extension.

The Digital Side is a cartilaginous Basis, unequally and obliquely triangular, the Apex being turn'd inward. It is articulated with the second Metacarpal Bone, and is also a little notch'd on the Radial Edge, for its Articulation with the small Edge of the first Metacarpal Bone.

The Radial Side is very small, and, near the Basis, it is articulated with the Os Pyramidale; the rest of this Surface is without Cartilage. The Cubital Side is double, answering to a like Side in the Os Unciforme, with which it is articulated.

The outer Surface, which forms a Portion of the convex Side of the Carpus, is broad, rough, and uneven, for the Insertion of Ligaments. The inner Surface is likewise rough, but narrower; and round both Surfaces are several Depressions, which, in the natural State, are fill'd with small Glands and Ligaments.

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OS UNCIFORME.

In the fourth Bone of the second Row we are to consider the Body, and hook'd or Unciform Apophysis, from whence it has the Name of *Unciforme*. This Apophysis, one of the four Eminences on the concave Side of the Carpus, is flat, and the hollow Side of its Curvature is turn'd toward the Os Magnum. The outer Surface of its Body is rough, and, in some measure, triangular. It completes the convex Side of the Carpus, and, toward the Ulna, terminates in a small Tuberosity, which is all the Cubital Side of this Bone.

It has three articular or cartilaginous Sides, one Radial, one Brachial, and one Digital.

The Radial Side is double, answering to the Cubital Side of the Os Magnum. The Brachial Side is very oblique, partly a little concave, and partly a little convex, answering to the Digital Side of the Os Cuneiforme. The Digital Side is double, or distinguish'd into two Halves, by a Sigmoid angular Line, for its Articulation with the two last Bones of the Metacarpus.

The Bones of the Carpus are articulated with each other by Arthrodia, but the first Row forms a sort of Ginglymus with the second, because the Head of the Os Magnum may turn in the Cotyloide Cavity of the first Row, while the two first Bones of the second Row slide upon the Digital Side of the Os Scaphoides, and the Os Unciforme in the same manner on the Os Cuneiforme.

When all these Bones are in their natural Situation, a transverse Depression is form'd on the convex Side of the Carpus, by which the two Rows are distinguish'd. This Depression appears most between the Os Scaphoides and the three last Bones of the second Row, and looks like a kind of Fold, by which the second Row is thrown a little back upon the Convexity of the first. The four Eminences on the concave Side of the Carpus are for the Insertion of a strong transverse Ligament. The inner Substance of all these Bones is spongy, and their Surfaces are not very compact.

The BONES of the METACARPUS.

The Metacarpus is the second Part of the Hand, situated between the Carpus and Fingers. The Antients, who call'd the *Carpus*, *Brachiale*, from whence the Word Bracelet seems to be deriv'd, term'd the *Metacarpus*, *Post-Brachiale*.

The Metacarpus consists of four Bones, one Side of which forms a broad Cavity, call'd the Palm of the Hand; the other a gentle Convexity, call'd the Back of the Hand. The ancient Anatomists reckon'd five Bones in the Metacarpus, including that Bone which is now look'd upon as the first Phalanx of the Thumb.

The Bones of the Metacarpus are long, thicker at the Extremities than at the Middle, and of unequal Length and Bigness. The first is the largest, the rest are lessen'd by Degrees in all their Dimensions. The two first are sometimes, tho' very rarely, equal.

Each Bone is divided into the Extremities and Middle-part; or into a Basis, Body, and Head. The Bases are angular, and turn'd toward the Carpus; the Heads rounded like Condyles, and turn'd toward the Fingers. Both are cover'd with Cartilages, and the Heads remain for a long time very distinct Epiphyses.

The Bases are narrow, and almost angular, toward the Palm of the Hand; toward the Back of the Hand their Breadth is considerable; but, on the other two Sides, they are very broad; and there they have small articular Sides, which I call lateral Sides. The Heads are flatted on the two Sides, which answer to the lateral Sides of the Basis; and their greatest Convexity is turn'd toward the Palm of the Hand, terminating in two obtuse Points. Several Notches and Fossulae break in upon the lateral Sides, and the flat Sides of the Heads are a little depress'd, a small Tubercle arising in the Middle of each Depression.

The Body of each Bone is contracted, of a triangular Figure, and distinguish'd into three Sides, whereof one is external, and a little convex, contributing to make the Back of the Hand; the other two internal, and a little concave, one being turn'd obliquely toward the Radius, the other toward the Ulna. These three Sides are separated by the same Number of Angles; and that Angle, which parts the two internal Sides, is sharp. It is by these two Sides, and the Angle between them, that the Hollow of the Palm of the Hand is form'd.

FIRST BONE.

The first Bone of the Metacarpus is longer, thicker, and bigger, than any of the rest, and supports the fore Finger. Its Basis is a little hollow, answering to the Digital Side of the Os Pyramidale of the Carpus. On the outer Edge there is a small angular Notch, and, on the Cubital Edge of the Basis, a small lateral Line, which is articulated with the Basis of the second Bone. The inner Edge is terminated laterally by an oblique Angle, which is articulated with the neighbouring An-

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gle in the Basis of the Os Magnum. Round the Basis are Inequalities and Depressions, for the Ligaments and articular Glands. The Outside of the Body of the Bone is broader toward the Head than toward the Basis.

SECOND BONE.

The second Bone of the Metacarpus supports the middle Finger, and has this peculiar to it, that its Basis is very oblique, terminating at the outer Edge by an angular Point, turn'd toward the first Bone. By the triangular Side of its Basis, it is articulated with the Basis of the Os Magnum; and, by its lateral Sides, with those of the first and third Bones of the Metacarpus.

THIRD BONE.

The third Bone of the Metacarpus supports the Ring-finger, being less than the first and second. Its Basis is irregularly triangular, and proportionably less than the two former; and by the principal Side thereof, it is articulated with the first Half of the Side of the Os Unciforme. The small lateral Sides of the Basis join those of the second and fourth Bone of the Metacarpus.

FOURTH BONE.

The fourth Bone of the Metacarpus supports the little Finger. The principal Side of its Basis, instead of being triangular, as in the other Bones, is all of an equal Breadth, a little oblique, somewhat convex, somewhat concave, and is articulated with the second Half of the Side of the Os Unciforme. By its lateral Side it joins the corresponding Side of the Basis of the third Bone; but in a much looser manner than in the other Articulations of the like Kind. On the opposite Side there is a small Tuberosity.

The BONES of the FINGERS.

The Fingers make the third Part of the Hand, and terminate the whole upper Extremity. They are five in Number in each Hand, call'd the Thumb, the fore Finger, the middle Finger, the Ring-finger, and the little Finger.

They may be said in general to represent the same Number of compound, long, small, bony Pyramids, convex on one Side, somewhat concave on the other, and join'd by their Bases to the Carpus and Metacarpus, from whence they diminish gradually, and end in a sort of small Heads.

The Thumb is the biggest of all the Fingers; next to that is the third, call'd the long Finger. The second and fourth are shorter than the third; the fourth being a very little longer than the second. The fifth is the smallest of all.

Each Finger consists of three Pieces, call'd *Phalanges*; the first of which is longer and thicker than the second; and the second than the third. Each *Phalanx* is divided, in the same manner as an entire Finger, into a Basis, middle Portion, and Head; into two Sides, one convex, the other concave; and into two Edges. The Bases of the Phalanges remain Epiphyses for a long time, as well as the Heads of the metacarpal Bones.

FIRST PHALANX of the THUMB.

The first Phalanx of the Thumb is not like those of the other Fingers. Ancient Authors reckon'd it among the Bones of the Metacarpus, which it resembles very much; and then they counted five Metacarpal Bones, allowing only two Phalanges to the Thumb. The convex Side of this Phalanx is very much flatten'd, and broader toward the Head than toward the Basis. On the concave Side is a kind of angular Line, which in some measure distinguishes it into two Parts. Its Head is like those of the metacarpal Bones, only flatten'd at the Top.

The articular Side of its Basis is proportion'd to the Digital Side of the Os Trapezium of the Carpus; and fram'd in such a manner, as that the Sigmoid Cavities and Eminences in both Bones cross each other. This Articulation has something very particular in it. It is a kind of double Ginglymus, which readily allows of Flexion and Extension, Adduction and Abduction, but with Difficulty permits the oblique Motions; because then the two Sides run counter to each other.

The Head and Basis carry for a long time the Marks of Epiphyses; and for all these Reasons, this Bone may be reckon'd a Metacarpal Bone degenerated.

The SECOND PHALANX.

The second Phalanx of the Thumb is shorter than the first; its Body convex or semicylindrical on one Side, flat on the other, and contracted between the Edges. The articular Side of the Basis is gently concave, and surrounded near the Edges by small Tuberosities; as also near the Angle of the Phalanx. The Head is a regular Portion of a Polly, which projects more on the concave than on the convex Side; and on each Side of it there is a small Fossula, and some Inequalities in form of Tubercles. On the flat or concave Side of the Phalanx are two rough Lines, one near each Edge, which are often destroy'd in cleaning the Bones; they are the Impressions or Marks of the articular

articular Vaginæ, which shall be explain'd in describing the fresh Bones.

The Connexion of this Phalanx with the first is by a kind of Arthrodia, or by a flat Enarthrosis, which permits a Motion in several Directions, though more limited than in other Articulations of the same Kind. It is articulated with the third by a very perfect Ginglymus.

THIRD PHALANX.

The third Phalanx of the Thumb represents the half of a sort of Cone, cut lengthwise; and by joining it to the same Bone of the other Thumb, an entire Cone is form'd. The convex Side is more even than the flat Side; and on each Edge there is a Tuberosity near the Basis. The Basis has two hollow Sides, which form a Ginglymus, with the Head of the second Phalanx. The Head is small and flat, ending in a rough semi-circular Border; which, on the flat Side of the Bone, represents a Horse-shoe.

The FINGERS.

The other four Fingers in general, and their Phalanges in particular, are all nearly of the same Structure, differing chiefly in Size. The fore and Ring-fingers are almost equal, only the fore Finger is generally a little bigger, and sometimes a little shorter than the other. The middle Finger is the longest; and the little Finger the least. Almost the same Proportions are to be observed in the Phalanges.

FIRST PHALANGES.

The first Phalanges of these four Fingers are made nearly in the same manner with the second of the Thumb; only they are longer in proportion, flatter on the concave Sides, and more rounded on the convex Sides. The Edges of the flat Sides have the same rough Line as the second Phalanx of the Thumb. Their Bases are more hollow for their Articulations with the Heads of the metacarpal Bones, and their Heads are like Pullies, as in the second Bone of the Thumb.

SECOND PHALANGES.

The second Phalanges are shorter, narrower, and thinner than the first. Both Phalanges are somewhat incurvated, and resemble each other in Structure, except that the second contract by Degrees from their Bases to the Heads, which are very small; and that their Bases have a double Cavity for their Articulation, by a Ginglymus, with the Heads of the first Phalanges. Their flat Sides have the same rough Lines already mentioned.

THIRD PHALANGES.

The third Phalanges are in every thing like that of the Thumb, except that they are smaller, each of them being proportion'd to the Fingers they belong to.

It is to be observed concerning all the Phalanges, that their Bases have small Tuberosities; and their Heads, except those of the last Phalanges, have on each Side a roundish sort of Fossula, border'd with small Eminences.

The particular Situation and Uses of the BONES of the UPPER EXTREMITIES.

The Hand is generally represented in Sceletons and Figures, as lying in the same Plane, and in the same longitudinal Direction with the Bones of the fore Arm. This gives a very false Idea of its true Situation, which, with respect to the fore Arm, is oblique in two respects. The Back of the Hand is inclined upon the convex Side of the Carpus, and makes an Angle with the fore Arm; and, besides, the fourth Bone of the Metacarpus is inclined towards the Ulna in particular. In a Word, the Breadth of the Hand makes an Angle with the Breadth of the fore Arm; and the Thickness of the Hand, at the same time, with the Thickness of the fore Arm. I mean here that Part of the fore Arm which is next the Hand.

This is owing to the Structure and Situation of the Bones of the Carpus, and to their Connexion with those of the fore Arm. First, the two Rows of these Bones make a sort of transverse Fold on the convex Side of the Carpus; and the articular Brachial Sides of the two first Bones of the first Row are turn'd a little toward the same convex Side of the Carpus; which obliges the whole Hand to be a little bent back in its natural Situation. Secondly, the Edge of these Bones next the Ulna is much shorter than that next the Radius, which makes the Cubital Edge of the whole Hand incline to that Side.

By not considering this, a large void Space is commonly left in Sceletons, between the Extremity of the Ulna and the Os Cuneiforme of the Carpus. It ought likewise to be observed, that the Edge of the Metacarpus next the Ulna is shorter than the other; so that in the Metacarpus a small and great Edge may as justly be distinguished as in the Carpus.

In this oblique and natural Situation of the Hand, the Fingers being extended, and a little separated, the Extremity of

the fore Finger will be found to answer to the Interstice between the Bones of the fore Arm; and if in this Situation we make alternately the Motions of Pronation and Supination, the Extremity of the fore Finger will be found to be in some measure the common Centre of these Motions.

This Disposition of all the Bones of the Hand is moreover very well contrived, to give it several kinds of Attitudes; for by means thereof it may be lengthen'd, flatted, shorten'd, and contracted. The Hand is lengthen'd or widen'd, and flatted, by extending all the Fingers, and turning back the Thumb, which is what is called extending or opening the Hand. It is shorten'd by bending all the Fingers, whether in what is call'd closing the Fist, or in grasping any thing; and to this the Situation of the Thumb, and the oblique Disposition of the Bones of the Metacarpus and Fingers, contribute in a particular manner. And as in this Case the Thumb counterbalances all the other Fingers, the Articulation of the first Phalanx thereof with the Os Trapezium appears to be render'd more firm and steady, by partaking a little of the Nature of a Ginglymus, without hindering its other Motions. Lastly, the Hand is contracted, and made into a sort of Gutter or Furrow, by the Adduction of the Thumb, and the easy Motion of the fourth Metacarpal Bone; and if at the same time we bend the Fingers, and press them close together, we both shorten and contract the Hand; and thereby form a Hollow, which is called *Diogenes's Cup*.

In the Fingers we ought likewise to remark, that though the Articulation of the second Phalanx of the Thumb, and first Phalanges of the other Fingers, be moveable in many Directions, and framed nearly in the same manner as that of the Os Humeri with the Scapula; yet these Phalanges cannot be moved round their Axes. This is not owing to their Conformation, but to the want of proper Muscles. The same thing cannot be said of the first Phalanx of the Thumb; because, though it had proper Muscles, yet the kind of Half-ginglymus, by which it is articulated, would not allow of such a Motion.

The Thumb is situated differently from the other Fingers. The Fingers, both with respect to their Sides and Edges, have, in their natural Situation, nearly the same Direction with the Plane of the Metacarpus. The Thumb being in its natural Situation, and free from the Action of all its Muscles, its convex Side answers to the convex Side of the Radius, and its flat Side is turn'd toward the little Finger; and the first Phalanx makes an hollow Angle with the Radius, and a prominent Angle with the second Phalanx; but both this, and the third Phalanx, lie in a strait Direction, like that of the fore Arm.

The Carpus is the Basis and Centre of all the Motions of the Hand, except that of Rotation. By means thereof, we can bend the Hand in all Directions, but with more Ease toward the Sides and Edges, than any other Way. The four Bones of the second Row may have a small Degree of Motion on the first, such as a Ginglymus can allow of.

The Radius is in a manner the Handle of the Hand; and it is chiefly by means thereof, that we can move the Hand reciprocally as on the Axis, turning either Edge of it toward the Body. This Motion or Attitude is term'd Pronation; and when the Cubital, or small Edge, is toward the Body, it is term'd Supination. In the natural and most ordinary Situation of the Hand, the Palm is turn'd toward the Body, and not the Edges.

This Disposition of the Hand determines the true Situation of the Radius, which is not on one Side of the Ulna in a parallel Direction, as the Figures and Sceletons commonly represent it; but the Radius crosses the Ulna obliquely in such a manner, as that the Styloide Apophyses in both Bones are directly over-against each other. This is its true natural Situation. The Radius, being bent, may be still farther cross'd over the Ulna, than in its natural Situation; and this happens in Pronation, but in Supination it is parallel to the other Bone.

The Ulna supports the Handle of the Hand, without being itself articulated with the Hand. Two lateral *Ginglymi*, and very strong Ligaments, connect the Radius closely with it, so that in the most violent Motions these two Bones cannot be separated. When we push or press any thing with the Hand, the whole Force is sustain'd by the Radius, the Basis of which supports the Wrist, and its concave Head is strongly press'd against the small inferior Head of the Os Humeri. The oblique Direction of the Pulley of the Ulna is the Reason, that, in bending the fore Arm upward, the Extremity of that Bone is naturally turn'd toward the Thorax, and not without Difficulty toward the Articulation of the Scapula.

An Account of the Cartilages and Ligaments are not less necessary to a Knowledge of the superior Extremities, than the preceding Detail of the Bones. For this Reason, I shall give

WINSLOW'S Remarks upon the FRESH BONES.

The Cartilage by which the Hemisphere of the Head of the Os Humeri is covered, is gradually thicker toward the Middle, than toward the Edges.

The four Surfaces of the Tuberosities, which appear cartilaginous in dry Bones, serve only for the Insertion of the Tendons of four Muscles which move the Os Humeri on the Scapula.

The Channel or Sinus between the two Tuberosities is partly covered by a thin Crust, which appears rather ligamentary than cartilaginous; and partly by a tendinous Stratum, of which hereafter.

The Trochlea and small Head of the lower Extremity of the Os Humeri are covered by a common Cartilage, in which the same Proportion of Thickness is observable, as in that of the upper Extremity. This holds pretty generally of all the convex articular Cartilages.

The Fossulae near the Pulley and small Head are covered with a kind of thin cartilaginous or ligamentary Varnish.

The Capsular or mucilaginous Ligament loosely surrounds the whole Articulation of the Scapula with the Head of the Os Humeri. From its Insertion round the Edge of the Glenoid Cavity, it is continued over the Hemisphere of the Head of the Os Humeri, and fixed near its Edges, towards the muscular Surfaces of the great and small Tuberosities.

Afterwards parting from them on both Sides, in the large Space left between the two Tuberosities, that is, between the small Tuberosity and the lowest Surface of the great Tuberosity, it runs down gradually on the Neck of the Bone below the lowest Part of the cartilaginous Hemisphere.

In all this Course the Capsula is closely fixed in the Bone, except in the small Space left between the two Tuberosities, that is, at the Channel or Sinus, where it forms a Production like the Tube of a Funnel, proportion'd to the Capacity of the Channel, and strongly fix'd in the upper Portion thereof. This membranous Tube is the Vagina of the inter-articular Tendon of the Biceps.

The true Ligament of this Joint appears to be composed of two Ligaments closely united together; one a Capsular Ligament, which surrounds the whole Articulation; and the other, fram'd by several true Ligaments which run over, and closely adhere to the former in different Places.

Thus the Capsula, or mucilaginous Bag of this Articulation, is in part strongly united to four flat Tendons inserted in the two Tuberosities; and in part covered by true ligamentary Bands, which, between the four Tendons, and on both Sides of the first and last, form a considerable Thickness. The rest of the Space between the first or superior Plane of the great Tuberosity and the small Tuberosity is so little provided with ligamentary Fibres, that it has been believed to be altogether without them; and Anatomists have satisfy'd themselves with telling us, that in these Places the orbicular Ligament is very rough on the Outside, but shining and smooth on the Inside.

On the Body of the Os Humeri there are two particular Ligaments, which I term intermuscular, or lateral. They are long, flat, thin, strong, and narrow, fixed on one Edge along the two lower Thirds of the Bone, and reaching to both Condyles. They are braced pretty tight, and are very narrow at the upper Part, but broader toward the Condyles.

The lower Extremity of the Os Humeri is joined to the Bones of the fore Arm by two Fasciculi of Ligamentary Fibres, one fixed to the internal Condyle, the other to the external. Each Fasciculus is composed of Fibres closely joined together at the Condyle, and afterwards parting in distinct Bands like a Goose's Foot.

The Capsular Ligament is fixed to the Condyles, and there covers them; and afterwards it is fixed round both Sides of the lower Extremity above the Fossulae. Its Insertion in these Sides is Archwise; so that it is there at a much greater Distance from the Articulation, than at the Condyles. The Fossulae are slightly varnish'd over with a cartilaginous Substance.

This Capsula appears to be strengthen'd by a Ligamentary Web, the Fibres whereof cross each other in different Directions; but we must not take for Ligamentary Filaments some tendinous Fibres of Muscles, to which the Capsula adheres very closely. It appears larger and looser when the Muscles are separated from it, than in its natural State, when closely united to the Muscles.

The two Sigmoid Cavities in the upper Extremity of the Ulna are covered by a Cartilage common to both, which is a little interrupted about the Middle of the Edges of the Cavities by the transverse Notches mentioned before. This cartilaginous Crust seems to be thicker at the Edges, than in the Middle.

The inferior Extremity, or small Head of the Ulna, is crufted over by a Cartilage round its cylindrical Border, in the Notch near the Styloide Apophysis; and for some Space on the Apophysis itself.

The Cartilage which covers the Head of the Radius is likewise stretched over the cylindrical Border thereof; and a lateral Portion of the muscular Tuberosity immediately below the Neck is also covered with a thin shining Cartilage.

All the concave Side of the Basis of the Radius is cartilaginous, and often divided by a small cartilaginous prominent Line. The

lateral Notch of the Basis is likewise covered by a Continuation of the same Cartilage.

The lateral Half-grooves or Channels of the Basis of this Bone appear likewise to be crufted over with a cartilaginous Matter; but this I rather take to be Portions of the annular Ligaments.

At the Basis of the Radius there is likewise a particular additional Cartilage, or triangular Production, longer than it is broad, very thin, and rather flat than concave on both its smooth Sides. It is fixed by its Basis, or shortest Side, to the lateral Sigmoid Notch of the Basis of the Radius, in such a manner as that one Side of it is on a Level with the large cartilaginous Surface of the Basis of the Bone, and its Apex directly opposite to the Styloide Apophysis. The other Side touches the flat Extremity of the small Head of the Ulna, but is not fixed to it.

This Cartilage may be term'd the interarticular Cartilage of the Joint of the Wrist. It is tied to the Radius by very short Ligaments; and sliding on the small Head of the Ulna, it follows all the Motions of the Radius. It is therefore a sort of articular Production of the lower Side of the Basis of the Radius, and fills in the natural State the void Space, which, in the Skeleton, appears between the End of the Ulna, and the neighbouring Bone of the Carpus.

Some of the Ligaments of the Bones of the fore Arm are common to them with the Os Humeri; some common to them with the Bones of the Hand; and some are proper. These last are two in Number; one call'd the interosseous Ligament of the fore Arm; and one which may be termed the coronary Ligament of the Radius. To these may be added the annular Ligaments, which only serve for the Passage of Tendons, and other Ligamentary Expansion, which may be called muscular Ligaments.

The interosseous Ligament of the fore Arm is very like that of the Leg. It is fixed by one Edge along the sharp Angle of the Ulna, and by the other along that of the Radius. It is principally made up of two very strong Planes of Fibres, which cross each other at oblique Angles, and leave Holes at different Distances for the Passage of the Blood-vessels.

This Ligament ties the two Bones closely together; and the two Planes serve for the Insertion of several Muscles. In the Supination of the Hand it is very tightly braced; but in Pronation it is folded a little Lengthwise.

The Coronary Ligament of the Radius is a sort of Ligamentary Hoop surrounding the circular Circumference of the Head of that Bone, reaching from one Side of the small lateral sigmoid or transverse Cavity of the Ulna to the other, in an Arch, which is about three quarters of a Circle. It is very strong, and comes near the Solidity of a Cartilage. The Side next the Radius is very smooth; and though it connects that Bone very closely to the Ulna, yet it leaves it room enough to turn in the Motions of Pronation and Supination.

The Capsular Ligament of the Joint of the Elbow runs down from its Insertion in the Os Humeri, and is fixed in the Olecranon round the Edge of the great Sigmoid Cavity, including both the Apex of the Olecranon, and of the Coronoid Apophysis. It likewise runs over the Head of the Radius, and is fixed to the Coronary Ligament quite round. Thus it completely surrounds the Articulation of these three Bones, and serves to contain the mucilaginous Liquor furnished by the Glands, and fatty Substance, both which are found in great Quantities near the Extremity of the Bone which forms the Elbow.

The true common Ligaments by which the Os Humeri is connected to the Bones of the fore Arm, call'd lateral Ligaments, are the two Fasciculi before-mentioned, which, after being inserted in the Condyles of the Os Humeri, are expanded like a Goose's Foot. That which is fixed in the inner Condyle may be call'd Brachio-cubitale, and the other Brachio-radiale.

The Brachio-cubital Ligament running down over the Capsula, to which it closely adheres, below the great Edge of the Trochlea of the Os Humeri, is inserted like Radu (of which its other Extremity fixed in the Condyle is the Centre) on the Side of the great Sigmoid Cavity of the Ulna. It is covered on the Outside by several Tendons which adhere closely to it, and seem to strengthen it.

The Brachio-radial Ligament is disposed much after the same manner, but is of a greater Extent. It is expanded from the external Condyle of the Os Humeri, as from a Centre; and is inserted round the Coronary Ligament, and from thence all the Way down to the Neck of the Radius; and also in the neighbouring Parts of the Ulna. Through all this Passage it covers the Capsular Ligament, and is covered by several Tendons adhering closely to both.

Of the Ligaments by which these Bones are connected to those of the Hand, one is like a roundish Cord fixed in the Styloide Apophysis of the Ulna, and from thence passes directly over the Os Cuneiforme of the Carpus, in which, and in other Bones, it is inserted in a peculiar manner. Another pretty broad Ligament is fixed in the Point of the Radius; and by its other Extremity, in the Bones of the Carpus.

From this Styloide Ligament of the Radius, along each Edge of the Basis of that Bone, are Ranks of Ligamentary Fibres lying much in the same Direction with the Ligament itself, and continued all the Way to the Styloide Ligament of the Ulna; those nearest the Ulna inclose the interarticular Cartilage of the Basis of the Radius, and near the Styloide Ligament of the Ulna there is a particular Fasciculus inserted in the Point of that Cartilage.

All these Ligaments surround and cover the Capsular Ligament so closely, that they can hardly be distinguished from it. The Capsula is likewise in part cover'd by a Portion of a great oblique Ligament, which being by a very broad Insertion fixed in the large Extremity of the Radius, about two Fingers Breadth above the Styloide Apex, afterwards crosses obliquely, partly over the convex Side of the *Basis Radii*, and partly over that of the Carpus; and then turning towards the Os Orbiculare, is inserted therein. It is called the external transverse Ligament of the Carpus; and may likewise be named the great oblique Ligament of the Wrist.

There are several small annular Ligaments placed at different Distances on the convex Side of the *Basis Radii*, from its Styloide Apex to its Articulation with the Extremity of the Ulna. They are at least six in Number, some of them being often double or triple.

The first is fixed in the Styloide Apex; the second in the Groove near that Apex; the third, in the small narrow or middle Groove; the fourth, in the Groove next the former; the fifth, in the Corner of the semilunar Notch of the Basis, at its Articulation with the Ulna; and the sixth, in the Extremity of the Ulna, near the Styloide Apophysis.

These particular Ligaments are almost wholly covered by the great oblique Ligament, and are fixed as strongly in it on one Side, as they are in the Bones on the other. They are all very strong, and their concave Sides, serving for *Fræna* to the Tendons of several Muscles that pass over them, are very smooth, and accompanied with thin mucilaginous *Vaginae*.

To these we may add the Ligamentary Expansions, with which several Muscles are cover'd, and separated from each other, as by so many distinct *Septa*; which are all very thick and strong, where they are inserted in the Bones. One kind of them may be term'd Ligamentary Bands, or muscular *Vaginae*, the other Ligamentary *Septa*, or intermuscular Ligaments.

All the Bones of the Carpus, Metacarpus, and Fingers, are covered over with Cartilages at those Places, which I term'd Mucilaginous Surfaces, in the Treatise of dry Bones: but in fresh Bones they are thicker, softer, and whiter, than in the Skeleton. In adult Subjects, their Figure remains the same in both; but it changes in the dry Bones of younger Subjects, and in those of Children it is quite different. The Impressions and Notches in which the mucilaginous Glands are lodged, are most sensible in the Cartilages of fresh Bones, because of their Thickness.

The Ligaments of the Carpus are very numerous. Some of them tie each Bone to one or two neighbouring Bones in the same Rank; and these are composed of a great Number of Filaments, but so very short, as to allow these Bones only a small Degree of Motion. Some of them tie the Bones of one Row to those of the other; which are likewise made up of many Filaments, but not so short as the former, and therefore allow these Bones a more manifest Motion, as we see in bending the Wrist. Lastly, there are other Ligaments of the Carpus, by which the three first Bones of the first Row are connected to the Bones of the fore Arm; and to these may be added the Ligaments by which the Bones of the second Row are join'd to those of the Metacarpus, and first Phalanx of the Thumb.

We have already describ'd all the Ligaments belonging to the Articulation of the Carpus, with the Bones of the fore Arm, except their Insertions in the Carpus. The Styloide Ligament of the Radius is fixed round the neighbouring Tuberosity of the Os Scaphoides. The Styloide Ligament of the Ulna is fixed first in the Os Cuneiforme, and then in the Os Unciforme, from whence it is a little stretched over the fourth Bone of the Metacarpus.

The Ligamentary Ranges, which lie between the above-mention'd Ligaments, the Basis of the Radius, and a small Portion of the Head of the Ulna, are fixed round the common Convexity of the three first Carpal Bones, as is also the mucilaginous Capsula, by which these Ligaments are lined.

Besides all these small short Ligaments belonging to each Bone in both Rows, the rough Surfaces of all the Bones, especially those which form the Convexity of the Carpus, give Insertion to a great many Ligamentary *Fasciculi*, stretched over, and closely united to the former small Ligaments, and serving, probably, to strengthen them. Some *Fasciculi* of the same kind are found on the concave Side of the Carpus, but they are fewer in Number, and not so strong.

There is likewise a considerable Ligament, called the inner transverse Ligament of the Carpus. It was formerly called an

annular Ligament, and may still very justly retain that Name in the Sense already explain'd, when I spoke of the Ligaments in general.

The Bones of the Metacarpus, besides the short Ligaments by which they are tied to the second Row of the Bones of the Carpus, have several Rows, by which both their Bases and Heads are connected together. The Bases of the third and fourth Bones are not so closely tied as the rest, and therefore they have a very sensible Motion, which, however, is greater in the fourth than in the third.

The Heads of these Bones are firmly tied to each other, by a strong transverse Ligament, situated in the Palm of the Hand, and fixed by distinct Productions in the neighbouring Part of the Heads, in such a manner, as to form in the Spaces between the Heads, as it were, perforated or chanel'd *Fræna*, through which the Tendons of the Flexor Muscles of the Fingers have a free Passage, and these *Fræna* are also supported by aponeurotic Expansions.

The first Phalanx of the Thumb is fixed to the Os Trapezium by short Ligaments, which pass obliquely over the Articulation. The first Phalanges of the other four Fingers are joined to the Heads of the Metacarpal Bones, almost in the same manner, and by Ligaments like the former, which are strengthen'd by adhering to the transverse Ligament. The second Phalanx of the Thumb is joined to the first, by Ligaments of the same kind.

The third Phalanx of the Thumb is joined to the second; the second Phalanges of the other Fingers to the first, and the third to the second, by lateral Ligaments almost in the same manner as the Bones of the fore Arm to the Os Humeri; that is, these Ligaments spread from a Point fixed in the lateral Tubercles of the Heads of the Phalanges, and are inserted by their other Extremity like *Radii*, in the Bases of the neighbouring Phalanges.

The two first Phalanges of each Finger have a very strong Ligamentary *Vagina* inserted in the rough Lines or Ridges on their flat Sides. These *Vaginae* are lined with a mucilaginous Membrane, which runs like a Tube, from one Phalanx to the other, over the Articulation. They serve for *Fræna* to the Flexor Muscles of the Fingers, the Tendons of which pass through them. *Winflow*.

All these Bones would be useless, and an Incumbrance, if they were not furnish'd with Muscles, in order to move them in such Directions, and for such Purposes, as the Exigencies of Mankind may require. All these Muscles are described, and their Uses are specify'd, under their proper Names. I shall therefore only, in this Place, give their Names, and some Observations of Mr. Cowper, relative to them.

Galen, *Jacobus Sylvius*, and *Vesalius*, describe seven Muscles belonging to each Arm, that is, the

PECTORALIS.

DELTOIDES.

TERES MAJOR.

LATISSIMUS DORSI.

SUPRASPINATUS.

INFRASPINATUS, and

SUBSCAPULARIS.

Arantius, in his Anatomical Observations, counts another, by *Riolanus* called,

CORACOBRACHIÆUS.

To which *Julius Casserius Placentinus* adds the

TERES MINOR

By some reckoned as the eighth Muscle of this Part, which is therefore called OCTAVUS HUMERI PLACENTINI.

The MUSCLES of the CUBIT.

The lower Part of the Arm, from the Elbow to the Wrist, is called the Cubit, which is either bended or extended by five Muscles, which are the

BICEPS.

BRACHIÆUS INTERNUS.

GEMELLUS.

BRACHIÆUS EXTERNUS, and

ANCONÆUS.

Of the MUSCLES of the PALM of the HAND.

The ancient Anatomists mention but one Muscle belonging to the Palm, which is the PALMARIS LONGUS.

But *Fallopins* describes the PALMARIS BREVIS, communicated to him by *Joannes Baptista Cananus*, an eminent Anatomist, his Contemporary, and was first published by *Valverde*, in his Anatomy written in Spanish.

The MUSCLES of the FOUR FINGERS.

The Muscles of the four Fingers are divided into common and proper. The common Muscles of the Fingers are such as arise

arise from the external or internal Protuberances of the *Os Humeri*, and, subdividing themselves, are inserted into most, if not all the Fingers ; they are the

PERFORATUS.
PERFORANS.
LUMBRICALES, and
EXTENSOR COMMUNIS DIGITORUM.

The proper Muscles of the Fingers are such as have their Beginnings distinct, and are inserted, without any Subdivision, into each respective Finger ; as the

INTEROSSEI.
EXTENSOR INDICIS.
ABDUCTOR INDICIS.
EXTENSOR MINIMI DIGITI.
ABDUCTOR MINIMI DIGITI.

Of the MUSCLES of the THUMB.

Authors disagree concerning the Number, Rise, and Insertions of the Muscles of the Thumb; which may partly proceed from that great Variety, which may be so frequently observed in divers Subjects: They are the

FLEXOR TERTII INTERNODII, SEU LONGISSIMUS POLLICIS.
ABDUCTOR POLLICIS.
FLEXOR PRIMI ET SECUNDI OSSIS POLLICIS.
ADDUCTOR POLLICIS.
EXTENSOR PRIMI INTERNODII POLLICIS.
EXTENSOR SECUNDI INTERNODII OSSIS POLLICIS.
EXTENSOR TERTII INTERNODII OSSIS POLLICIS.

Of the MUSCLES of the WRIST or CARPUS.

These are generally well described by most Authors, and receive their Names from their Situation and Use.

FLEXOR CARPI RADIALIS.
FLEXOR CARPI ULNARIS.
EXTENSOR CARPI RADIALIS.
EXTENSOR CARPI ULNARIS.

Of the MUSCLES of the RADIUS.

The Radius is moved in common with the Ulna, or Cubitus; but besides that, it hath also a proper Motion, in which the Carpus, together with the Hand, is chiefly moved, or turned either upwards or downwards: And to this End there are two sorts of Muscles; of which some are called *Pronatores*, or those that turn it inwards, and the Palm of the Hand downwards; and others *Supinatores*, which turn it outwards, and the Palm of the Hand upwards. These have their Names from their Figure and Use, and are,

PRONATOR RADII TERES.
PRONATOR RADII QUADRATUS.
SUPINATOR RADII LONGUS.
SUPINATOR RADII BREVIS.

For the Blood-vessels of the superior Extremities, see ARTERIÆ, and VENÆ. And for the Nerves, see NERVI.

BRACHUNA. The same as ACRAI, which see.

BRACHYCEPHALI, βραχυκεφαλοι, from βραχυς, short, and κεφαλη, a Head. A kind of Fish, condemn'd by Oribasius, *Med. Coll. Lib. 2. cap. 58.* as of bad Juice, and a rank Smell.

BRACHYCHRONIUS, βραχυχρονιος, from βραχυς, short, and χρονος, Time. An Epithet of a Disease which continues but a short Time. *Galen. Def. Medicæ.*

BRACHYLOGIA, βραχυλογία, from βραχυς, short, and λογος, a Word or Sentence. A short Sentence, such as the Aphorisms of *Hippocrates*.

BRACHYPNOÏA, βραχυπνοια, from βραχυς, short, and πνοα, to breathe; most frequently signifies a short and small Respiration, and one fetch'd by long Intervals, according to *Galen, Lib. 3. de Diff. Resp. Cap. 8.* So βραχυπνοος is one who draws his Breath small and rare, that is, by long Intervals, from an universal Refrigeration of the Body, and Extinction of the natural Heat, *Lib. 3. Epidem. Aëgr. 1. § 15.* But, *Lib. 1. Epid. and Lib. 6. Epid. Sect. 2. Aph. 9.* βραχυπνοος is a short Respiration at small Intervals, or small and frequent, and is oppos'd to μακροπνοος. *Galen, Lib. 3. de Diff. Resp. Cap. 11. Forsius.*

BRACHYPOΤÆ, or BRACHYPOΤI, βραχυποτι or βραχυποτοι, from βραχυς, short, small, and ποτος, Drink. Little Drinkers. Persons in a Phrensy are said, *Lib. 1. Prorrhætic.* to be βραχυποτοι, that is, to drink little and seldom. The same in *Galen, Com. 3. in 3. Epid.* are call'd βραχυποτοι, which he explains to be ετοιμη βραχυ ή δια πολλου πινειν, "such as drink little at a time, and at long Intervals."

Some have erroneously imagin'd, that by this Word *Hippocrates* means to express the Dread of Fluids, with which People under a Hydropobia are seiz'd. But it is plain, that he only

means a Symptom very common in Fevers of the worst kind; and which is necessarily bad, because it prevents the Patient from taking sufficient Quantities of diluting Liquors, which are of great Importance in the Cure of acute Diseases.

It seems not unlikely, that this Disgust at Fluids may arise from a Dryness, and consequent Closure of the Mouths of the lacteal Vessels, which prevents Liquors from entering into them. Hence Liquors swallow'd are a Burden in the intestinal Tube, and consequently are nauseated.

Upon this Subject, I remember a pretty Observation of a Physician of Reputation, communicated to me; which was, that he attended a Patient in a Fever, whom he imagin'd plentiful Diluting would relieve; but could not prevail on him to take any Fluids, 'till, at last, he offer'd him some Oil of sweet Almonds, which he took with Pleasure, and would not be easy without taking it in large Quantities 'till he recover'd. If we consider the Lacteals, in this Case, as obstructed by extreme Dryness, and, at the same time, reflect upon the relaxing Nature of Oils, we may readily conceive why Oils should be agreeable to this Patient, whilst he could bear to drink nothing else:

BRACHYS. See BREVIS.

BRACIUM. Copper. *Rulandus.*

BRACTEA, βλασμα, ελασμος, πηλας. The same as *Lamina*, a Plate, or thin Piece of Metal. *Rulandus.*

BRADYPEPSIA, βραδυπεψια, from βραδύς, slow, and πεψια, to concoct. A slow, weak, and imperfect Concoction of Food. *Gal. de Diff. Sympt. Cap. 4.*

BRADYS, βραδύς, slow. See TARDUS.

BRANCA, an Italian Word, signifying Foot. Hence the *Acanthus* is call'd *Branca insana*, that is, *Bear's-foot*, from the Resemblance of its Leaves to the fore Feet of a Bear. *Blancard.*

BRANCA LEONIS, or PES LEONIS. The same as ALCHIMILLA, which see.

BRANCA URSINA, Germanica. See SPHONDYLIIUM.

BRANCHUS, βραγχος, το, a Defluxion of Humours upon the Fauces, being a Species of Catarrh, call'd by *Caelius Aurelianus, Lib. 2. Tard. Pass. cap. 7.* *Raucitas*, a Hoarseness. Hence, *Lib. 1. Epid. βραγχωσις ενοει*, and βραγχωσις εναυα, *Lib. de Aer. Loc. et Aqu.* are Waters which very much dispose to a Hoarseness. *Forsius.*

BRANCHI, or BRANCHÆ, is also a Name for those glandulous Tumors in the Fauces, which resemble two Almonds, and are accompany'd with a Difficulty of Spitting, and a troublesome Respiration. *Castellus.*

BRANCIA. Glass. *Rulandus.*

BRANTA, or BERNICLA. A kind of Goose in *England* and *Scotland*, which has been the Subject of many fabulous Stories; as that it grows on Trees, and hangs on the Trunk or Branches; or is generated of rotten Wood. It is described by *Aldrov. Ornith. Lib. 19. Cap. 23.* Its Flesh is more unfavoury and rank, than of the common Goose, but is esteem'd a Delicacy in the inland Parts of *Scotland*.

BRASE. Coals. *Rulandus.*

BRASILIA, Offic. *Arbor Brasilia*, Raii Hist. 2. 1736. Park. Theat. 1644. *Brasiliun lignum*, J. B. 1. 490. *Brasiliun lignum*, Chab. 37. *Lignum Brasilianum*, Geoff. Tract. 310. Mont. Exot. 8. *Pseudosantalum rubrum*, sive *Arbor Brasilia*, C. B. Pin. 393. *Ibirapitanga sive Lignum rubrum*, Pison. (Ed. 1658.) 164. *Ibirapitanga Brasiliensis*, Marcg. 101. *Crista pavonis Coronilla folio tertia*, sive *Tinctoria maxima Brasiliana*, flore variegato parvo odoratissimo, siliquâ aculeatâ, lignum *Brasiliun dictum serens*, Breyn. Prod. 2. 37. *Ethyboxylum Brasiliun spinosum, foliis Acacia*, Herm. Par. Bat. Prod. 333. BRASIL WOOD. Dale.

This is the Wood of a Tree call'd *Pseudosantalum rubrum Brasilia*, C. B. P. It is used by Dyers in dying Red, as the yellow *Brasil Wood* is for that Colour. *Geoffrey.*

It is cold and dry, mitigates the Heat of Fevers, and is a Restricting and Strengthening, like the Wood of *Sanders*. Dale.

BRASIUM. The same as BYNÆ, which see.

BRASMA, βρασμα, in *Dioscorides, Cap. 189. Lib. 2.* is a light empty sort of black Pepper, which is good for nothing. *John Bauhine* assures us, that it is the same with what is now observed to corrupt on the Plant, and never come to Maturity.

BRASMOS, βρασμος. The same as ζυμωσις, "Fermentation;" for which a very ancient Greek Author, *Pharmuthus*, is quoted. It is also call'd *Echrasmus*, εχρασμος. *Castellus.*

BRASATELLA, *Brassadella*. The same as OPHTHOGLOSSUM, or *Adder's Tongue*. *Rulandus.*

BRASSICA. A Cabbage. A celebrated Plant among the Antients, and much in Use among the Moderns.

The Garden Cabbage is agreeable to the Stomach, if it be eaten slightly boil'd; for, after thorough Boiling, it binds the Belly; and much more, if it be twice boil'd, or boil'd in a Lixivium. The Summer Cabbage is more acrimonious and hurtful to the Stomach. What grows in *Egypt* is not eatable, because of its Bitterness.

Cabbage,

Cabbage, in Food, is good for Dulness of Sight and Tremblings: Eaten after Meals, it prevents the mischievous Consequences of Surfeiting and Drunkenness. The tender Shoots are most agreeable to the Stomach, but fuller of Acrimony, and more diuretic; but, being put in Pickle, are hurtful to the Stomach, and disturb the Belly. The Juice of raw Cabbage, taken with Iris and Nitre, mollifies the Belly; and, drank in Wine, is good against the Bite of a Viper. Mix'd with the Meal of Fenugreek and Vinegar, it helps the Gout in the Feet and Joints; and is effectually apply'd to old and foul Ulcers. Infused by itself into the Nostrils, it purges the Head; and, made into a Pessary with Meal of Darnel, provokes the Catamenia. A Cataplasim of the Leaves, either alone or bruised with Polenta, is effectual against all kinds of Inflammations, cedematous Swellings, and Erysipelas; and cures the Epinyetides and Lepra. The Leaves, applied with Salt, cause a Carbuncle to break, and restrain the Falling-off of the Hairs of the Head. The same boil'd, and mix'd with Honey, stop the Progress of a Gangrene; and, eaten raw with Vinegar, relieve those who labour under splenetic Disorders: Chew'd in the Mouth, so as that the Juice be swallow'd, they restore a lost Voice. A Decoction of Cabbage, drank, loosens the Belly, and provokes the Menstrua. The Flowers, used in a Pessary after Child birth, prevent Conception. The Seed, especially what grows in *Egypt*, being drank, expels Worms; and is an Ingredient in thermal Antidotes. It also clears the Face of Freckles. The green Stalks, burnt, with the Roots, and then mix'd up with old Swine's Fat, and applied, mitigate inveterate Pains of the Sides. *Dioscorides, Lib. 2. Cap. 146.*

Wild Cabbage grows, for the most part, in craggy Places, and by the Sea-side. It is like the Garden Kind, only whiter, more hairy, and bitter. The tender Buds, boil'd in a Lixivium, are not unfavoury to the Palate.

A Cataplasim of the Leaves conglutinates Wounds, and dissolves cedematous Tumors and Inflammations. *Idem, Cap. 147.*

It would require a long Time to speak all that has been said in Praise of Cabbage. *Chrysippus* the Physician wrote a Volume on this Subject, which he digested under general Heads and Sections, according to the different Parts of the human Body; and *Dionysius* has written another: But, before them all, *Pythagoras* and *Cato* were no less liberal of their Encomiums on Cabbage. The Opinion of *Cato* concerning its Virtues deserves to be fully represented; and the rather, that we may know what sort of Physic the Roman People used for six hundred Years together.

The most ancient *Greeks* made three Species of Cabbage: As, first, the *curled*, which they call'd *Selinus*, from the Resemblance of its Leaves to those of Apium. This Kind is friendly to the Stomach, and gently mollifies the Belly. Another Species was the *smooth*, shooting forth broad Leaves from its Stalk, whence it was call'd by some *Gambules*: It was of no Use in Medicine. The third was properly call'd *Crambe*, which produced thinner Leaves, plain, and growing very thick together: This is of a bitter Taste, but of great Virtues. *Cato* most approves of the *curled*; next to which he prefers the *smooth*, with the large Leaves, and great Stalk.

He tells us, that it is effectual for Pains of the Head, Dimness of Sight, and Scintillations of the Eyes; for the Spleen, Stomach, and Plethora, if it be taken in the Morning raw, in Vinegar and Honey, mix'd up with Coriander, Rue, Mint, and the Root of Laser, to the Quantity of a Quarter of a Pint: That there is so great a Virtue in this Medicine, that the very Person who bruises the Ingredients will feel an Increase of Strength. It may be supp'd after it is bruised with these Simples, or taken out of the Liquor and eaten. Mix'd with Rue, Coriander, a little Salt, and Barley-meal, it makes a Cataplasim for the Gout. A Decoction of it in Water wonderfully helps the Nerves and Joints; and is an effectual Fomentation for Wounds, whether recent or old; and even for a Carcinoma, which can be cured by no other Medicine. He first orders the Part to be fomented with the warm Decoction, and the Herb to be bruised and applied twice in a Day; and by the same Method are hollow Fistulas incarn'd, and Tumors diseas'd. Boil'd Cabbage, plentifully eaten fasting, with Oil and Salt, relieves under Want of Sleep: Twice boil'd, and eaten with Oil, Salt, Cumin, and Polenta, it eases the Gripes; if eaten without Bread, it will have the more Effect. Among other Virtues, drank in black Wine, it purges Bile. The very Urine of one that usually eats Cabbage, being kept a while, and heated, is a Remedy for the Nerves. I will express the Author's Mind in his own Words, which are as follow: "If you wash little Boys with that Urine, they will never grow weak." He also advises the Juice of Cabbage, in Wine, to be insil'd warm into the Ears, and assures it to be good for Dulness of Hearing; and says, moreover, that it cures the Imperigo without ulcerating the Parts. So far *Cato*, for whose sake it is fit that I should subjoin the Opinions of the *Greeks*, which I shall do only in those Things which he has omitted. They hold it, if pai-

boil'd, to be a Cholagogue, and to loosen the Belly; but, after two Boilings, to be binding: That it resists Wine, as being an Enemy to Vines: That taken first at Meals, it prevents Drunkenness; if last, Surfeits: That, eaten as Food, it conduces much to Clearness of Sight; but is much more effectual, if only the Corners of the Eyes be touch'd with the raw Juice, mix'd with *Attic* Honey: That it is a Food of very easy Concoction, and cleanses and quickens the Senses. The Disciples of *Erasistratus*, with one Voice, assert, that there is nothing more beneficial to the Stomach and Nerves, and prescribe it in Palsies, and Tremblings, and Spitting of Blood. *Hippocrates* orders it, after two Boilings, with Salt, to be given to those who labour under the Colic or Dysentery. He judges it also to be good in the Tenesmus and Affections of the Kidneys, and to procure Plenty of Milk to Women in Child-bed who eat it, and to provoke the Menstrua. The Stalks, eaten raw, expel the dead Fœtus. *Apollodorus* advises the Drinking of the Seed or Juice, against the Poison of Mushrooms [*Fungi*]. *Philistius* recommends the Juice in Goats Milk, with Salt and Honey, for the *Opisthotonici*. I find also, that some have been freed from the Gout by eating it, and drinking the Decoction; and it is prescribed for the Cardiac Passion, and the Epilepsy; and also for Disorders of the Spleen, in White-wine, for forty Days. The raw Juice of the Root is order'd to be gargarized, and drank, for the Jaundice, and in a Phrensy. For the Hiccough it is prescribed to be drank in Vinegar, with Coriander, Dill, Honey, and Pepper; and Inflammations of the Stomach have been relieved by anointing it with the same. The Decoction only, with Barley-meal, or the Juice in Vinegar, or with Fenugreek, heal the Bites of Serpents, and old fordid Ulcers. Some apply it to the Joints affected with the Gout; and an Application thereof cures also the Epinyetides, or any other spreading cutaneous Affection; also a sudden Dimness [*Caligines*], which it also helps, if eaten with Vinegar. The simple Juice takes off the livid Marks of Blows in the Face, or any other Part, if it is anointed therewith: The same, with round Alum and Vinegar, cures the Lepra and Psora; it prevents also the Falling-off of the Hair. *Epicharmus* asserts, that an Application of it is very effectual in Diseases of the Pudenda; and that its Virtue is increased by mixing it with Bean-meal. Mix'd with Rue, it cures Convulsions; and, taken with the Seeds of Rue, it allays the Heat of burning Fevers, helps Disorders of the Stomach, and expels the After-birth. The Powder of the dried Leaves cures the Bites of the Shrew-mouse.

Of all the sorts of Cabbage, the sweetest are the *Gymæ* (young Sprouts, after the first Cutting); tho' they are of no Use in Medicine, are difficult of Concoction, and noxious to the Kidneys. We ought also to take Notice, that the Liquor of boil'd Cabbage, so much commended for its manifold Usefulness, stinks when pour'd upon the Ground. The Ashes of burnt Cabbage-stalks are reckon'd among Caustics; and, mix'd with very old Fat, help the Sciatica. With Laser and Vinegar they serve as a Pflothrum, to prevent the Growth of Hairs after they have been pull'd out. Drank in heated Oil, or in Water wherein they alone have been boil'd, they are effectual in Convulsions, inward Ruptures, and Bruises by Falls.

Are there, then, no ill Properties belonging to Cabbage? Yes, these same Authors acknowledge, that it gives a Person a rank Breath, is hurtful to the Teeth and Gums; and in *Egypt* they will not eat it, on account of its Bitterness.

Cato is very diffuse in his Praises of the wild Cabbage, and affirms, that the Powder of the dried Plant, made into an Eriline, or the Smell of it alone, taken up the Nostrils, cures all Defects, and amends the ill Scent therein. Some call this the Rock Cabbage, and say, that it is a great Enemy to Wine, that the Vine avoids it above all things, and, if it cannot get rid of it, dies. It has two small round smooth Leaves, and is much like the Garden Colewort, but whiter and more hairy. *Chrysippus* recommends it for Inflammations, and melancholy Disorders; also for recent Wounds, being applied with Honey, and not taken off before the seventh Day: For strumous Swellings and Fistulas, he orders it to be bruised in Water. Others affirm, that it checks the Progress of spreading Ulcers, which they call *Nomæ*; consumes Excrecences, and smooths the Skin from Scams and Scars; that being chew'd, or the Decoction of it gargariz'd with Honey, it heals Ulcers of the Mouth, and Affections of the Tonsils; and that three Parts of it, mix'd with two Parts of Alum, in strong Vinegar, cure the Psora, and inveterate Lepra, if anointed therewith. *Epicharmus* will have the Application of it a sufficient Cure for the Bite of a mad Dog; but it is more effectual with Laser and strong Vinegar. It is also said to kill Dogs, if given to them in Flesh. The Seed, roasted, is a Remedy against the Venom of Serpents, and the poisonous Effects of Mushrooms, and Bulls Blood. The boil'd Leaves are given in Food for Disorders of the Spleen; and are applied crude, with Sulphur and Nitre, by way of Cataplasim, to the affected Part, with good Success; as also to a Hardness of the Breasts. The Ashes of the Root cure a Swelling of the Uvula, by touching it; and, made into a Litus, with Honey,

Honey, reprefs the Parotides, and heal the Bites of Serpents. We shall here add one great and wonderful Argument for the Virtues of Cabbage, which is, That if all your Vessels, used for Boiling, have contracted a Crust or Foulness on the Inside, to such a Degree, that you know not how to remove it, Cabbage boil'd in your Vessels shall effectually scour it off, and leave them clean.

The Lapsana is a Species of wild Cabbage, a Foot high; with hairy Leaves, and very much resembling the Napus, but that it has a whiter Flower. It is eaten in Food, and gently mollifies the Belly.

The Sea Cabbage purges with more Violence than any of the rest: It is dress'd with fat Flesh-meats on account of its Acrimony, and is very offensive to the Stomach. *Pliny, Lib. 20. Cap. 9.*

Cabbage twice boil'd, if it be eaten, binds the Belly; but Cabbage once, and not much, boil'd, and then taken in Oil, Garum, or Salt, is rather loosening than binding; and the Juice thereof is also more purgative than that of Lentils: But the *Brassica marina*, or Sea Cabbage, is more manifestly of a purging Quality, which may be known by its saltish and bitter Taste. *P. Æginet. Lib. 1. Cap. 74.*

Cabbage is of a drying Quality, whether eaten or outwardly applied, without any manifest Acrimony; for which Reason it conglutinates Wounds, and cures malignant Ulcers, and Tumors which are difficult to be discuss'd. It has also somewhat of a deterfive Property, by which it heals the Lepra. The Seed, especially what grows in *Egypt*, being drank, destroys Worms. The Ashes of the burnt Stalks are a Caustic; and, mix'd with Fat, are effectual in removing an inveterate Pain in the Sides. The wild Cabbage is stronger than the Garden Kind upon all Accounts, and is therefore not to be taken inwardly without Injury. *Idem, Lib. 7. Cap. 3.*

The Juice of Cabbage has somewhat of a purgative Quality, tho', according to the common Notion of Dryers, it should rather bind, than dispose to Excretion. Cabbage is, indeed, as much a Dryer as Lentils, and therefore dulls the Sight, except the Eye be preternaturally moist. However, it is not so wholesome a Green as Lettuce, but contains a bad and stinking Juice. *Oribasius, Med. Coll. Lib. 2. Cap. 5.*

The same Author recommends a Decoction of the Root of Cabbage as a Diuretic and Emmenagogue. *Synops. Lib. 1. Cap. 22.*

A Way of preparing CABBAGE, quoted by Oribasius, from Mnesitheus Cyzicinus.

Cut up a Cabbage with a very sharp Knife; then wash it, and throw away the Water. After this, pound the same with a sufficient Quantity of Rue and Coriander; then sprinkle it well with Oxymel, and throw over it some fine Scrapings of Silphium.

Half a Quarter of a Pint of this Medicine, being taken, will suffer no Collection of noxious Matters in the Body, and expels them, if already gather'd. Besides, it helps Dimness of Sight, Shortness of Breath, and all manner of Disorders in the Region of the Diaphragm and Hypochondria, opens Obstructions of the Spleen, and extenuates that Part, when increased to an enormous Size; and is wonderfully effectual in Disorders proceeding from the Atra Bilis, by purging the Veins. In Diseases of the Joints, there is nothing of such Efficacy as this Preparation of Cabbage, taken in the Morning fasting.

For the Gripes it is prepared in the following manner:

Let the Cabbage be first macerated in Plenty of Water; then put into hot Water, and boil'd till it be much wasted. This done, the Water must be all thrown away, and Oil put to it: Let them boil together, and then be put into a Vessel. It is to be eaten alone cold, or with other Food, not once only, but every Day in the Morning, for many Days together; but not much of it must be taken at a time, lest it should do more Harm than Good. *Oribas. Med. Coll. Lib. 4. Cap. 4.*

Simeon Sethi, an Author amongst the lower *Greeks*, and who lived about the Year 1070. writes thus of Cabbage.

Cabbage generates depraved and melancholic Juices, weakens the Sight, and interrupts Sleep with frightful and disagreeable Dreams. Its Juice is purgative, but the Substance of the Cabbage itself is binding; for which Reason, when we intend to stop Diarrheas, we pour out the Water in which the Cabbage has boil'd for some time, and add fresh Water to it immediately; and, after it has been thus boil'd, it is to be used without being exposed to the Air, or put in cold Water to cool it. Its Juice is more prejudicial in the Summer than in the Winter-time. It provokes Urine, kills Worms, and removes the bad Consequences arising from a Surfeit of Wine. It is said to render the Sight of sound Eyes dim; and, on the other hand,

VOL. I.

to remove that Species of Dimness which arises from a superfluous Humidity. It loses much of its noxious and hurtful Quality; by being boil'd with fat Flesh. Its Seeds, applied to the genital Parts, by a certain peculiar occult Quality, corrupt the femal Juices, and hinder Women from conceiving; they are also prejudicial to the Lungs. It is reported, that Cabbage is; of all other Foods, the most proper for preventing Intoxication by Liquors; and that its Juice, exhibited in Honey, wonderfully restores the Voice when lost or disorder'd. If applied to Wounds, it conglutinates them; and cures malignant Ulcers; and scirrhus Inflammations. *Simeon Sethi.*

From these Observations of the Antients it is obvious, that in Cabbage we are to consider two kinds of Substances, on which the different Effects produced by it depend: The one is a solid and terrestrial Principle, from which it derives its drying, astringent, and obstructing Qualities, and its Tendency to generate depraved and melancholic Juices. The other is its Juice, to which its abstergent, opening, and deobstruent Virtues are to be ascribed. This Doctrine is also inculcated by the *Schola Salernitana*, C. 57. in these Words:

Jus Caulis solvit, cujus Substantia stringit.

But as the Sentiments of *Dr. Hoffman* will, in all Probability, be of greater Weight with the present Age, I shall here give his Opinion of Cabbage, in a Translation of his own Words.

Common red Cabbage, says he, is evidently possess'd of a medicinal Quality; and abounds with a Juice, which, by its nitrous, sweet, emollient, laxative, aperitive, attenuating, and stimulating Qualities, promotes those Excretions which are absolutely necessary to the Preservation of Health. For this Reason it is not only a Preservative against Diseases, especially of the chronical Kind, but also contributes very considerably to their Cure. *Bartholine*, in *Libr. de Medicina Danorum Domest. Differt. 1.* extols Cabbage in these Words: "The common Cabbage of the Country-people is justly preferable to other Pot-herbs, since, both raw and boil'd, it is possess'd of such salutary Qualities, as to prevent Occasions for the Medicines used in the Shops. For this Reason, when a certain foreign Physician came into *Denmark* with a Design to settle, and saw the Gardens of the Country-people so well stock'd with Cabbage, he, with good Reason, prognosticated small Encouragement for himself in that Part of the World. It keeps the Belly in an easy and soluble State, and a Decoction of the Tops of its tender Shoots discharges such an incredible Quantity of Bile and Phlegm, that no Medicine proves a quicker, a safer, or a more efficacious Purge, Hellebore and Scammony not excepted." In the Shoots of the common red Cabbage, cut longitudinally, when the Autumn is pretty far advanced, there is a Juice whose Taste resembles that of Honey or Manna, which flows from them when laid in a cool Place for some time, and which I have often experienced to be of a purgative Quality. It is a bad Method of preparing Cabbage, first to boil it for some time, and pour out the Water; and then to boil it again with fresh Water; since, by this means, its salutary and medicinal Juice is in a great measure lost. For this very Reason I cannot help commending the Method of preparing it used by the Inhabitants of *Westphalia*, and the Duchy of *Brunswick*; for they do not throw away the Broth, which is impregnated with the more noble and salutary Virtues of the Plant; but, adding Salt and Fat to it, prepare it in such a manner, as that it becomes not only agreeable to the Taste, but wholesome and salutary to the Constitution. Of the Tops of red Cabbage, Water-crelles, Ground-ivy, Spinage, Asparagus, Succory-root, and Dead-nettle, boil'd in Beal or Capon Broth, a Food is prepared, far preferable to all other Medicines in phthical and scorbutical Disorders. *Hoffman de Præstantia Medic. Domest.*

The Juice of Cabbage is of such a Nature as not only to afford a sufficient Supply of Nourishment to the Body, but also to correct the acrid Salts of the Juices, allay the Acrimony of the Blood, cleanse the Intestines, and scour the Kidneys. For this Reason, Cabbage is highly salutary in Disorders of the Breast, if baked in a close Vessel in an Oven, adding Sugar or Honey to it, after it is taken out; for by this means it will, in the Space of half an Hour, become a Jelly, or thick Juice, which, used as a Lumbative, is of singular Efficacy in dry Coughs, excoriated Fauces in old Men, and Cases where a purulent Matter is expectorated. A Decoction of Cabbage, with an Addition of Raisins, is used by Preachers and Pleaders in Hoarseness, and Defects of Voice, arising from too long Speaking. Its Juice, used for ordinary Drink, proves an excellent Remedy for the Scurvy; and this was, in all Probability, the Reason why the foreign Physician, mention'd by *Bartholine*, promised himself so poor Encouragement in *Denmark*, where the Scurvy is endemial, when he saw their Gardens so well stored with this Plant. The *Italians* put the young Tops of the *Brassica Jimbriata*, or Boor-cole, into their Sallads, in order to render the Body soluble, and provoke Urine. *Konigius* gives

as an Account of a dropical Patient, who, after despairing of Relief from the Physicians, was at last happily cured by a Quack, by means of Cabbage infused in Wine, with proper Correctors. The Plant itself, a little boil'd, with an Addition of Lemon-juice, and new Butter, is an excellent Remedy in phthical and hectic Disorders. The red Cabbage is preferable to the white, in Cases where the Body is afflicted with Ulcers, since, in such Constitutions, the white soon assumes a putrid Quality, and becomes fetid. I am of Opinion, that the moderate Use of it may, in some Cases, produce salutary Effects; but can't persuade myself to believe, that large Quantities of it, frequently taken, supply the Body with laudable nutritious Juices. Where Urine is to be provoked, or the Body render'd soluble, it, by its stimulating Muriatic Acid, proves effectual, with such as are not accusom'd to take Physic. Many People, especially in *Poland*, use pickled Cabbage for dissipating the Remains of a Debauch, which Intention they find it answers very well. Besides, it has been observed, that the Pickle of Cabbage plentifully drank, by the Country-people, has removed continued Fevers, cured Dropsies, and carried off the most obstinate Tertian Agues. When the Peasants of *Croatia* are seiz'd with Fevers, they successfully apply Cataplasms of pickled Cabbage to their Foreheads. The Pickle of Cabbage is said to be very effectual in Burns, Gangrenes, and the Beginnings of Inflammations in the Fauces, where the Intention is to refrigerate and repel, especially with an Addition of Lemon-juice. Nor is unpickled Cabbage less useful for various external Purposes, since it refrigerates, repels, opens, and deterges. Thus 'tis usual, after Vesicatories are taken off, to apply the Leaves of white Cabbage, anointed with Butter; but they ought to be removed every two Hours. According to *Etmuller*, they may also be very properly laid upon Issues, in order to carry on the Discharge of the Matter, and prevent Consolidation. Nurses also apply the Leaves of Cabbage to their Breasts, in order to prevent Coagulations of their Milk, and hinder it from being accumulated in too large a Quantity. Some apply them to Abscesses of the Breast, in order to prevent Inflammations, and promote the Consolidation of the Ulcer. The Country-people, in order to cleanse Wounds and Ulcers, either pour the Juice of Cabbage into them, or lay its Leaves bruised to them. Some use red Cabbage-leaves, after having stripp'd off the outer Skin and Ridges, by way of Plaster, in inflamed Wounds, and itchy Ulcers. The Leaves, anointed with Rape-oil, are, in pestilential Disorders, very successfully applied for the Maturation of Ulcers and Carbuncles. *Diemerb. de Peste*. The Leaves, boil'd up into a Cataplasim, with Butter, mature and break Impostumations. It is said, that when the Achors of Children are repel'd, the Leaves of the *Brassica Capitata*, applied to them, never fail to make the Discharge of the Matter return. *Simon Pauli* tells us, that he himself knew a certain Girl, who, in the Space of fourteen Days, had an incredible Number of Warts taken off one of her Hands, by anointing them with the Juice of Cabbage, which she allow'd to dry on them. In feverish Heats the Leaves are applied to the Soles of the Feet, with Salt, instead of Vesicatories. *Etmuller* informs us, that an antipleuritic Ointment is prepar'd of the Root of Cabbage, mix'd with Clove-gilly-flowers and Honey. *Bartholinus* gives Directions with regard to the Method of using it in Pleurifies, and affirms, that he has known many restored by its means, without the Concurrence of Venesection. Others make it thus:

Take fresh Hogs-lard, and Cabbage-juice, each two Ounces; and of Cumin-seed, three Drums. Mix up into the Form of an Ointment, to be applied to the Part affected. *ETMULLER*.

The Efficacy of Cabbage, so much extol'd by the Antients in arthritic Pains, was happily experienced by a certain strolling Quack in *Holland*, by whose Prescriptions many were sensibly relieved from the most racking arthritic Pains and Swellings, in the Feet, Hands, and Knees. The Leaves of red Cabbage, for this Purpose, are to be warm'd at the Fire, and applied to the Parts affected. Some use them anointed with new May Butter. *Forest. Obs. Med. L. 29. Obs. 10*. The Seeds of the red Cabbage, and especially the black Seeds of the *Brassica Fimbriata*, are possess'd of an anthelmintic Quality; and, when bruised, with Sugar, contribute to invigorate the Organs of Speech, and render the Voice clear, strong, and sonorous. But when they are grossly pounded, boil'd in Flesh-broth, and drank with the Broth, they are said to give certain and immediate Ease in Colic Pains. When reduced to the Form of an Emulsion, with Succory-water, they are also an excellent Medicine in nephritic Pains, and scorbutic Cases: If they cannot be had, Turnep-seeds are used as a Succedaneum to them.

The *Syrupus Brassicae rubrae*, in the *Pharmacop. Argentoratensis*, is made of the Juice of that Plant mixed up with Sugar, and is highly recommended in Disorders of the Breast, especially Coughs and Asthmas. The *Loboch de caulibus Gor-*

donii in the Pharmacop. Augustana, and *Antwerp*. is prepar'd of the Juice of red Cabbage, with Saffron, Sugar, and Honey, and is highly extol'd in Hoarseness, and in Coughs, which arise from Cold. The same Medicine is, by *Mesue*, prepar'd of the Juice of the Cabbage, with Sapa and Honey. Cabbage is a flatulent Species of Food, and of hard Digestion; for which Reason it is a good, as well as an antient Custom, to boil it with fat Flesh, that it may become tender, and easily digested, and to eat it with gross-pounded Pepper, in order to prevent Flatulencies. That Cabbage is of a hard Substance, is obvious from its being render'd more sweet and tender by Frosts, and nipping Colds; for 'tis probable, that its compressed and constricted Fibres are by the penetrating Cold so chang'd and alter'd, as to become softer when boil'd, and consequently more easily digested by the Stomach. With regard to the Method of preparing Cabbage, I shall here give the Advice of *Bruyerus*. "I must, says he, expose an Error which is no less common, than pernicious, in preparing Cabbage. Most People, in consequence of the Ignorance of the Cooks, eat it after it has been long boil'd, a Circumstance which does not a little diminish both its grateful Taste, and salutary Qualities. But I observe, that those who have a more polite and elegant Turn, order their Cabbage to be gently boil'd, put into Dishes, and season'd with Salt and Oil, by which Method they assume a beautiful green Colour, become grateful to the Taste, and proper for keeping the Body soluble. This Circumstance ought not to be forgot by those who are Lovers of Cabbage." The Antients boil'd their Cabbage with Nitre, which render'd it at once more grateful to the Palate, and more agreeable to the Eye. Hence *Martial, L. 13. Epigr. 17*. gives the following Advice.

*Ne tibi pallentes moveant fastidia caules,
Nitrata viridis Brassica fiet aqua.*

Among the Antients it seems to have been a Tradition commonly receiv'd, that Cabbage not only carried off the troublesome Consequences of a Surfeit, but also guarded against Intoxication, if eat before a Drinking-match was undertaken. For this Reason, the *Egyptians* were esteem'd a debauch'd and intemperate People, because they used previously to eat boil'd Cabbage, that they might indulge themselves the more freely and immoderately over the social Bowl. The Seeds of the Cabbage were also previously taken by many, with a View to prevent Intoxication. Besides, the Antipathy between the Cabbage and Vines was believ'd to be so great, that the latter yielded a poor and weak Wine, if the former happen'd to grow near them. See *Athen. L. 1. C. 25. Alex. Trallian. L. 1. C. 10. Pallad. R. R. L. 9. C. 5*. This Antipathy they accounted for, by a Fable almost too ridiculous to be mention'd. They affirm'd, that the Cabbage sprung from a Tear shed by *Lycurgus*; for, said they, when *Bacchus*, being afraid of *Lycurgus*, enter'd into the Sea, *Lycurgus* in the mean time, begirt with the pliant Branches of the Vine, dropt a Tear, from which the Cabbage rose; and ever since there was an Antipathy betwixt the Vine and the Cabbage; for, say they, when the Vine and Cabbage happen to grow near each other, the Cabbage itself either decays immediately, or causes the Twigs of the Vine to do so. They affirm'd also, that in Consequence of this Antipathy, when the Uvula or Columella was too much relaxed by a Defluxion of Humours, the Juice of raw Cabbage applied to the Head drew it back. They maintain'd in like manner, that if Cabbage and Vines were planted near each other, the springing Shoots of the Vine, when beginning to approach the Cabbage, ceased to come forth in their former Direction, but were turned backwards, as if they had been conscious of the mutual Antipathy between themselves and the Cabbage. In like manner they said, that when the least Quantity of Wine was pour'd upon Cabbage when it was boiling, it would after that become incapable of being boil'd, and have its Colour spoil'd. *Geopon. L. 12. C. 17*.

Aristotle, L. 3. Prob. 17. starts the Question, why Cabbage removes the Consequences of hard Drinking; and seems to account for it, from its sweet and discentient Juice. Whether what he advances on this Head is consonant to Philosophy, and good Sense, or not, 'tis yet certain, that aqueous Liquids possess'd of an abstergent Quality, as the Juice of Cabbage is, not only dilute the Humours of our Bodies, and allay their Fervor, but also make a Revulsion from the superior to the inferior Parts, and consequently carry off a Crapula, by freeing the Head from the offensive Matter; and that Cabbage, eaten previously to a Debauch, dilutes the spirituous Liquors drank, and blunts their Strength, so as to make them act less powerfully than they would otherwise do. But Experience convinces us, that the Efficacy of Cabbage is not so great in this respect, as entirely to prevent the Effects of immoderate Drinking.

As for the innate Antipathy between the Vine and the Cabbage, some of the Moderns have endeavour'd to account for it from the Nature of these two Plants, by saying, that they are both so fond of nutritive Juice, as greedily to suck up the Moisture of the Earth; from which it happens, that when they are planted in the Neighbourhood of each other; the one must languish and decay, because the other robs it of a sufficient Supply of Moisture. *Levin. Lemn. Mir. L. 2. C. 52. L. 4. C. 10. And Baco. H. N. Cent. 5. Exp. 479, 480.*

This Account however ingenious, labours under a terrible Disadvantage, which is, that it is contradicted by Experience, since we find, that Cabbages thrive no-where better than among young Vines, which in their Turn thrive as well as if there was no Cabbage near them. See *Eph. N. C. D. 2. a. 7. o. 64.*

The several Species of Cabbage best known, and most used, are the following.

BRASSICA SATIVA, *Caulis*, Offic. *Brassica capitata alba*, or white Cabbage Cole. Ger. 244. Emac. 312. C. B. Pin. 111. J. B. 2. 826. Chab. 268. Raii Hist. 1. 794. Tourn. Inst. 219. Elem. Bot. 188. Boerh. Ind. A. 2. 21. Hist. Oxon. 2. 206. *Brassica capitata*, Park. Theat. 268. *Brassica capitata vulgaris*, Park. Parad. 503. **WHITE CABBAGE and COLEWORTS.**

This Species of Cabbage is among the Germans most frequently used for Food; and of it they make their celebrated pickled Cabbage, called *Sauer Kraut*, of which *Cesner* says, that if *Cato* had only tasted it, he would have pray'd, *Totum ut se ficerent Dii Palatum*, that the Gods would convert every Part of him into the most exquisite Organs of Taste, that he might regale himself with so delicious Food.

BRASSICA CAPITATA RUBRA, Offic. Ger. 245. Emac. 313. J. B. 2. 831. Chab. 270. C. B. Pin. 111. Raii Hist. 1. 794. Hist. Oxon. 2. 207. Park. Parad. 204. Tourn. Inst. 219. Elem. Bot. 188. Boerh. Ind. A. 2. 10. **RED CABBAGE.** *Dale.*

This Species of Cabbage is cultivated in Gardens, and its Leaves are only used, a Decoction of which, sweeten'd with a little Sugar, and drank at medicinal Hours, is an excellent Medicine for promoting a Discharge of the purulent Matter in Empyemas by Urine. *Dale* from *Etmul.*

It bears the Winter better than most others; and is for medicinal Purposes esteem'd preferable to the white; for which Reason it is used in the Preparation of Syrups and Lochochs.

CAULIS RUBRA, Offic. *Brassica rubra*, C. B. Pin. 111. Ger. 244. Emac. 312. Tourn. Inst. 219. *Brassica rubra vulgaris*, J. B. 2. 831. Chab. 270. Raii Hist. 1. 796. *Brassica sativa rubra aperta laevis*, Hist. Oxon. 2. 207. **RED COLEWORTS.**

This Plant is cultivated in Gardens, and its Leaves are only in Use, a Decoction of which, sweeten'd with Sugar, is a celebrated Remedy in Asthmata. *Dale* from *Riverius.*

This Species of Cabbage bears the Cold of the Winter very well. In the Kitchens 'tis principally used in the Winter Season, after it is exposed to the Frost. In the Beginning of the Spring the Tops of its Shoots are by many thought a choice Ingredient in their Sallads.

BRASSICA SABAUDA, Offic. Ger. 247. Emac. 315. Park. Parad. 504. *Brassica alba, capite longo, non penitus clausa*, C. B. Pin. 111. Tourn. Inst. 219. Elem. Bot. 188. Hist. Oxon. 2. 207. Boerh. Ind. A. 2. 11. *Brassica Italica tenerima glomerata, flore albo*, J. B. 2. 827. Chab. 268. Raii Hist. 1. 795. **SAVOY CABBAGE.**

In the Gardens of England, this Species of Cabbage is only cultivated for the Kitchen. *Dale.*

The Savoy Cabbage is very delicate and tender, for which Reason it is much sought after by those who have nice Palates, and are acquainted with its agreeable Taste.

BRASSICA FLORIDA, Offic. Park. Theat. 269. Ger. 246. Emac. 314. Raii Hist. 1. 795. *Brassica cauliflora*, C. B. Pin. 111. Hist. Oxon. 2. 208. Tourn. Inst. 219. Boerh. Ind. A. 2. 11. *Brassica multiflora*, J. B. 2. 828. Chab. 269. *Caulis florida*, Park. Parad. 505. **THE COLLIFLOWER.**

This Species of the Cabbage is cultivated in Gardens, and is much used in the Kitchen. *Dale.*

The Use of the Colliflower is well enough known to Cooks, who prepare it much after the same manner they do the other Species of Cabbage. In Conjunction with other proper Ingredients, they also add it to Pyes and Sauces, which are very agreeable both to the Sick, and to the Healthy.

BRASSICA GONGYLODES, B. *Brassica caulorapa, Rapocaulis vulgo*; and *Brassica caule rapum gerens*. The **TURNIP-CABBAGE.**

The Heart of the Stock of this Cabbage, boil'd in fat Broth, is eat in the same manner Turneps usually are.

In Egypt the Eunuchs eat this Cabbage cut into small Portions, and boil'd in fat Broth; sometimes they also use it

boiled in Water, preparing it with Oil, Salt, and Vinegar. *Prosp. Alpin.*

The Seeds of the Turnep Cabbage yield an Oil by Expression, very proper for Lamps, and for the Purposes of those concern'd in the Woolen Manufactory: After the Oil is obtain'd, what remains is allotted for Food to the Cattle.

BRASSICA FIMBRIATA, B. *Brassica tophosa*; *Brassica crispa laciniata*. The **BOOR-COLE.**

This Species, both for Food, and medicinal Uses, is not inferior to the red Cabbage.

Its Seeds are of a blackish Colour, an acrid aromatic Taste, and of a Smell sufficiently grateful, tho' not strong.

BRASSICA CAMPESTRIS perfoliata, flore albo, C. B. P. *Perfoliata filiquosa*; Perfoliated wild Cabbage, with a white Flower.

This Species grows spontaneously in Spain, in some Parts of Austria, Provence in France, and in the Corn-fields about Marbach, in the Duchy of Wirtemberg. It flowers in the Summer, and brings its Seeds to Perfection. It is thought to be possessed of singular, if not more powerful Qualities, than the other Species of Cabbage; for which Reason it is by some called *Brassica rustica*; it is not used as Food. It is by other Authors distinguish'd by the Epithets, *Perfoliata*, *Napifolia*. *Baub. Morif. Garidel. Boecler. and Clus. Hist. Morison* thinks, that it is the *Krupu ayeia* of *Dioscorides*, and the *Brassica Sylvestris* of the Latins, for the Virtues of which, see the Passage already quoted from *Pliny*, L. 20. C. 9. and that from *Dioscorides*, L. 2. C. 114.

BRASSICA CAMPESTRIS perfoliata, flore purpurea, C. B. P. or, *Perfoliata filiquosa purpurea*. Perfoliated wild Cabbage, with a purple Flower.

Its Seeds, Root, and medicinal Virtues, agree pretty much with those of the perfoliated wild Cabbage with white Flower.

BRASSICA RADICE NAPIFORMI, C. B. P. or, *Brassica Sylvestris*, called *Napobrassica*. **TURNIP-ROOTED CABBAGE.**

This Species of Cabbage is principally cultivated in the colder Parts of Germany, in the Mountains especially, and towards Bohemia. Its Root may be eaten, and some pickle it, like the Colliflower.

BRASSICA ASPARAGODES CRISPA, *Brassica Epiphyllitis*, C. B. P. *Brassica thysoides*. **CURLED COLEWORT.**

This species lasts a long time, and endures the Rigors of the Winter in England. It was by the Greeks called *Asparagodes*, from its sending forth small Shoots like Asparagus, which are prepar'd in fat Capon or Mutton Broth. *Ray.*

BRASSICA SATIVA ALBA, vel viridis; *vulgaris aperta laevis*; or, *Brassica vulgaris sativa*. *Brassica laevis Theophrasti, Catonis, & Plinii*, the last of whom also called it **CAULODES.**

BRASSICA ALBA CRISPA; and *Brassica Sabauda rugosa*. **WHITE CURL'D CABBAGE.**

This Species is cultivated in Gardens, but does not endure the Winter. *Morison.*

BRASSICA CAPITATA ALBA MINOR MUSCOVITICA, H. A. The **RUSSIAN CABBAGE.**

This Species was formerly in much greater Esteem than at present, since 'tis now only to be found in particular Gentlemen's Gardens, who cultivate it for their own Use, but 'tis rarely ever brought to the Market. *Miller.*

BRASSICA CAPITATA ALBA COMPRESSA, Boer. Ind. The flat-sided Cabbage.

BRASSICA capitata alba pyramidalis. The Sugar-loaf Cabbage.

BRASSICA capitata alba praecox. The early Battersea Cabbage.

BRASSICA Sabauda hyberna, Loh. Ic. The white Savoy Cabbage.

BRASSICA capitata viridis Sabauda, Boer. Ind. Green Savoy Cabbage.

BRASSICA capitata virescens Italica crispa, Munt. Hist. The green Broccoli.

BRASSICA peregrina moschum olens, H. R. Par. The Musk Cabbage.

BRASSICA maritima arborea, seu procerior ramosa, Mor. Hist. Branching-tree Cabbage from the Sea-coast.

BRASSICA rugosa, longioribus foliis, J. B. Brown Broccoli.

BRASSICA arvensis, C. B. P. Common Colewort.

BRASSICA Alpina perennis, Tourn. Perennial Alpine Colewort.

SOLDANELLA, *Brassica marina*, Offic. Chab. 123. *Soldanella*, Merc. Bot. 1. 72. Phyt. Brit. 115. *Soldanella marina*, SEA BINDWEED, Ger. 690. Emac. 838. Mer. Pin. 114. SEA COLEWORT, Raii Hist. 1. 726. *Soldanella maritima minor*, C. B. Pin. 293. *Soldanella vulgaris volubilis marina*, Park. Theat. 167. *Brassica marina, sive Soldanella*, J. B. 2. 160. *Convolvulus maritimus Soldanella dictus*, Raii Synop.

3. 276. *Convolvulus maritimus nostras rotundifolius*, Hist. Oxon. 2. 11. Boerh. Ind. A. 245. Tourn. Inst. 83. Elem. Bot. 73. SCOTTISH SCURVY-GRASS, or SOLDANELLA.

It is produc'd in the most sandy Parts of the Sea-coast, and flowers in June. The whole Herb is in Use, and, as it is excellently calculated for discharging Water, it contributes very much to the Cure of Dropsies and Scurvies. Dale from Schrod.

Of this Plant Miller enumerates the three following Species.

1. The *Soldanella Alpina rotundifolia*, C. B. P. Round-leav'd Soldanella of the Alps.

2. *Soldanella Alpina rotundifolia, flore niveo*, C. B. P. Round-leav'd Soldanella of the Alps, with a Snow-white Flower.

3. *Soldanella Alpina, folio minus rotundo*, C. B. P. Soldanella of the Alps, with a Leaf less round. Miller's Dictionary.

What they call the Sea Cabbage is, in all respects, different from the cultivated Kind, as producing numerous thin slender Leaves, like those of round Birthwort, each proceeding from a very red Spray, and standing upon a single Pedicle, like those of Ivy. Its Juice is white, but not copious; and tastes saltish, with a kind of Bitterness, and is of a fat Consistence.

The whole Plant is hurtful to the Stomach, and acrimonious; and, if boil'd and eaten, is extremely opening to the Belly. Some boil fat Flesh-meats with it, because of its Acrimony. Dioscorides, Lib. 2. C. 148.

The Root of Soldanella is small, white, and stringy, sending forth long weak trailing Branches, climbing on any thing it lays hold on, like the common Bindweed. The Leaves grow alternately on the Stalks, in Shape and Bigness like the lesser Celandine, set on long foot-stalks. The Bell-fashion'd Flowers come forth at the Joints, with the Leaves in Shape like the common Bindweed, of a reddish-purple Colour. The Seed is black and corner'd, contain'd in a round Capsula. The Root, Stalk, and Leaves, afford a milky Juice.

It grows upon the Sea-beach, in many Parts of the North of England, and flowers in June.

Sea Cabbage evacuates watery Humours very powerfully, and is by some given as a good Purge in the Dropsy; but it works very ruggedly, and very much disorders the Stomach, and therefore needs good Correctives. It is given likewise in the Scurvy and Rheumatic Cases; tho' it is but seldom us'd. Miller's Bot. Off.

BRASSIDELLICA *Ans.* A Way of curing Wounds in Paracelsus, Lib. 2. de Vita longa, cap. 14. by applying the Herb Brassidella, or *Ophioglossum*, to the Place.

BRATHU, βραθυ, in Oribasius and Aetius, is the Herb Savine. See SABINA.

BREGMA, βρέγμα, βρέγμα, βρεγμας, from βρέχω, to irrigate, or moisten. The middle and fore Part of the Head, situated above the Forehead, and extended on the Sides as far as the Temples, call'd by *Caes. Aurelianus, Tard. Pass. Lib. 1. cap. 4. A Medium Testae*. βρέγμα is expounded in *Hesychius* by τὸ μέσον τῆς κεφαλῆς, "the Middle of the Head;" by others the Sinciput. Thus *Homer, Iliad. 3. εὐεργίος ἐκπεσὺς δίφρου, κύμβαχος ἐν κορίσῳ ἐπὶ βρεγμὸν τι χ' ὄμους*, "he fell forward out of his magnificent Chariot into the Dust, upon the Sinciput and Shoulders." Where *Enstatius*, on this Place, writes, that the Part is call'd βρέγμα, because, in Infants, it is not only tender, but very humid, so that it may seem βρεγθῆναι, "to be irrigated." *Hippocrates, Lib. de cap. Pul.* lays, that "the thinnest and weakest Bone of all the Head is," τὸ κατὰ βρέγμα, "that at the Bregma." Again, in the same Treatise, he says, "the Brain is very tender, and quick of Sense, in Wounds which affect the Flesh and Bone," κατὰ τὸ βρέγμα, "about the Bregma;" χ' ὁ πλεῖστος ἐγκέφαλος ὅτι τῷ βρέγματι καίται, "and that great Part of the Brain lies under the Bregma."

BRELISIS. The Caranna (a sort of Gum). *Rulandus*.

BRENTIUS, βρεθῆν, a Species of Duck or Moor-hen, accounted delicious Food by the *Barbians*. *Aldrovandus Ornitholog. Lib. 19.*

BREPHOS, τὸ βρέφει, whether from τρέφω, to nourish, by changing τ into β, or from φρέφω of the same Import, by a Metathesis of the Letters ε and φ, let Philologists determine. An Infant. *Castellus*.

BREVE VAS, or *Vasa Brevia*. These are form'd by some Branches of Veins from the Coronary Veins of the Stomach, which join with the Splenic Veins at the Spleen.

Tho' these Vessels the Antients thought that a melancholic Humour was convey'd from the Spleen to the Stomach, which served to vellicate the Membranes of it, and to excite Appetite. But this Fancy is refuted by the Discovery of the Circulation of the Blood, which has demonstrated, that nothing comes thro' those Vessels from the Spleen to the Stomach; but that, on the contrary, Blood is convey'd from the Stomach into the Splenic Vein, and by that to the Vena Porta. *Drake*.

BREXANTES, βρεξαντες. An Epithet of a kind of small green Frogs, in *Galen, Lib. 10. de San. tuend.* where he ex-

poses the Vanity of a Remedy, prepar'd of the Blood of those Frogs, for hindering the Regeneration of Hair. The Word *Brexantes* is made by an Onomatopoeia taken from the Sound of the Voice of these Animals. *Castellus*.

BREYNIA. A Plant so nam'd in Honour of Dr. *Breynius*, a learned Botanist at *Dantzick*. It has a Rose-flower, consisting of many Petals, which are placed in a circular Order, from whose Flower-cup rises the Pointal, which afterwards becomes a Fruit or Pod, which is soft and fleshy, in which are several Kidney-shap'd fleshy Seeds. There are two Species of this Plant, which are, the *Breynia* with broad Almond-leaves, and that with Leaves like those of the wild Olive. It grows very common in *Jamaica*, and several other Parts of *America*, being a Tree thirty Feet high, with a Trunk of the Bigness of a Man's Thigh. I find no medicinal Virtues ascrib'd to it. *Miller's Dict.*

BRICUMUM. The Name by which the *Gauls* call'd the Herb *Artemisia*. *Marcellus Empiricus, cap. 26.*

BRINDONES. *Indici Fructus rubentes acidi*, J. B.

In *Goa*, in the *East-Indies*, as *Garcias* relates, there is a kind of Fruit, which they call *Brindones*; it is a little reddish on the Outside, but the Inside is as red as Blood, and of a very sour Taste. Sometimes the Outside is blackish, which Colour it contracts by Maturity; and the Fruit is not near so sour as the other, but altogether as red in the Inside. This Fruit is very agreeable to many Palates, but not to mine, says *Garcias*, because of its excessive Sourness. The Dyers use it, and the Rind is preserved, and transported to make Vinegar, for which Purpose it is used by some in *Portugal*. *Raii Hist. Plant.*

BRISTOL WATER. These Waters, in respect to Heat, are the fourth in Degree amongst the Waters which are esteem'd warm. Those of *Bath* are the first, *Buxton* the second, *Matlock* the third, and *Bristol* the next.

As to the Virtues of the *Bristol* Water in particular Cases, the Physicians upon the Spot are the best able to adapt them properly; but, that I may not omit some general Account of their Uses, I shall insert the subsequent Extract from Dr. *Wynter's Cyclus Metasynticus*.

In speaking of the Differences betwixt *Bath* Waters and those of *Bristol*, I would willingly, says he, do strict Justice to both, with the utmost Impartiality: But since they can never prove Rivals, but on the contrary, Friends, and, by reason of their Vicinity, of mutual Good to each other, there can arise no Emulation, no Competition, much less Contention. Some, indeed, have endeavour'd to raise the Repute of the one, by lessening and denying the other: But this Practice, so dishonest in itself, must fall to the Ground, after I have made it appear, that they are of Qualities and Effects altogether different; that where the one is useful, the other is improper; and that therefore they are to be us'd in different Cases.

I shall likewise observe one Caution more; that I will not, with almost all the Writers who have gone before, make each Water to cure every Disease, and thereby render either suspected of having none, when each has manifestly so many good Qualities.

Dr. *Guidot*, indeed, has made these two Waters of one Kind; and then says, *Bristol* Waters cannot do the same as the *Bath*, as being impregnated with a far less Quantity of Salts than they; but drunk in greater Quantities, and for a longer Time, their Effects are not unlike those of the *Bath* Waters.

Who is there, that sees not the Doctor has hereby, with great Address, render'd the *Bristol* Waters of no Use at all? For who would chuse to drink more Water, or continue sick longer, than Necessity obliges him? But this Insinuation happens to be as false, as it is artful; and, indeed, I cannot forbear applying the Character a certain great Man gives Dr. *Morton's* Performances on another Subject, to our Author: He often wants Method, Clearness, and Judgment; is tedious, without instructing; and arguing, like the other, from chimerical Principles, draws not only trifling, but absurd and wrong Conclusions.

The learned Professor *Pitcairn* has laid it down as a certain Maxim, That due Secretions from the Blood, and their proper Distributions, are as necessary to the Preservation of Life, as the Circulation itself; and that the greatest Part of Diseases take their Origin from the glandular Secretions being too much increased or diminished. Whether this Doctrine will hold in acute or epidemic Diseases, the Cause of which the Antients ascrib'd to the Anger of the Gods, and the wisest of the Moderns profess themselves ignorant of, I shall not inquire: but it seems to be evident, that chronical Diseases are owing to one or other of these Causes.

The Blood is sometimes too thin, and then too great a Quantity of its serous Part is separated either by the Glands of the Skin, Guts, or Kidneys; as in colliquative Sweats, Fluxes of the Belly, and Diabetes: The Blood grown too viscous, occasions Obstructions not only in its own Canals, but in the Glands; and then the Secretions are less than they should be in a State of Health, and hence various Maladies.

Again,

Again, there is, in some Cases, too great Fulness; in others, Deficiency of Blood. Both these interrupt due Secretions.

Bath Waters, then, are beneficial, where the Secretion is diminish'd; *Bristol*, when too much increas'd. *Bath* attenuates powerfully; *Bristol* incrassates: *Bath* is spirituous, and helps Defect; *Bristol* is more cooling, and suppresses Plenitude, with its Consequences, Inflammation, and Hæmorrhage.

The Medicinal Waters of *Bristol* are by no means so modern a Discovery, nor is their Use of so late a Date, as is generally imagin'd. Dr. *Venner*, near seventy Years ago, writes professedly of them, and recommends them internally in all the Diseases for which they are at this time so deservedly celebrated, the Diabetes excepted, which was not known 'till near thirty Years after. From the Doctor's so full a Knowledge of their Qualities, we may infer, that they must have been in Repute and Use long before. Indeed, in his Time, and some Years after, they were not so much frequented, which might have been owing intirely to their inconvenient Situation, and want of Accommodation, which have been but of late sufficiently remedied. The incomparable Dr. *Maplet*, the Ornament of his Age, in the Year 1665. confirms their Virtues in the Stone and Gravel, Ulcers of the Kidneys and Bladder; and adds their external Force in curing cancerous Ulcers, in a very short time, which the Doctor thought incurable, by washing and fomenting them therewith. And, in a Letter to the Dean of *Wells*, 1669. he says, *Ad rupem Vincentianam tibi confugiendum esse arbitror, è quâ profiliunt aquæ renibus, & vesicæ, sive calculosis, sive exulceratis succurrere, necnon sanguinis massam contemperare, & ab illâ segregandam Urinam lenire, & edulcorare aptæ natæ.*

Thus, you see, the Virtues of *Bristol* Waters, and the several Diseases in which useful, were known to the Learned long ago: But that they are at this time so universally known, so successfully administer'd; that they are so much frequented by Persons of all Ranks in our own Kingdom, and in such Esteem abroad, is owing to Dr. *Mead* and Dr. *Lane*, who have so establish'd their Reputation, that it seems of an equal Period with their own.

I find myself again oblig'd to retire to my old Sanctuary, Experience; for it will be demanded, I should give an Account of the Contents and Cause of Heat in these Waters; and from thence, by an easy Hypothesis, deduce their Effects as a necessary and natural Consequence. But I had rather give the Assertions of others, than my own Conjectures, in Matters so abstruse.

Dr. *Venner* tells us, this Water receives its medicinal Faculties from Sulphur and Nitre, and from both but in a small Degree: He adds also, Iron; from which, he is persuaded, it has some Tincture; because a Patient of his, troubled with Gravel, and subject to Obstructions in the Spleen, in the Use of it, voided black feculent Matter by Stool.

Dr. *Guidot* says, their Impregnation is from Iron, a small Proportion of a nitro-sulphureous Salt, and Lime-stone: He informs us, that they can have but very little of Iron, because they neither turn purple with Galls, nor curdle Milk: But what I am surpris'd at is, how the Doctor came to find out they had any Iron Particles at all, since they give not the least Sign of it, torture them as you will.

I have taken the Courage now to add my Conjecture, which is, that if we may judge of their Contents from their Effects, which are exceedingly deterfivè and healing, they partake chiefly of Chalk, Lapis Calcaris, and Calaminaris, the Virtues of which, we know, are to dry, to cleanse, to incarn, or fill Ulcers with Flesh, and cicatrize them.

But, whatever the Substances are that impregnate them, it is very plain they are very subtle, and that there is but little of a terrestrial Part in them, from their specific Lightness above all other Waters; which is of itself so excellent a Quality, as by no means to be overlook'd; and also from Experiment; for, after Evaporation, I found only three Drams two Grains of the mineral-like Substance in five Gallons; and, after Distillation, no more than one Dram and a half of a white Powder, like levigated Pearl: So that the highest Proportion the vital Part bears to the elemental, is as 7 to 6814 in each Quart.

But when we consider how agreeable to the Sight, Smell, and Taste; how clear, pure, and soft, they are; their gentle Degree of Heat, so adapted to sundry Diseases; we cannot but conclude, that these Waters have imbib'd some salutary Particles in their Passage thro' the Earth; and, from the many Cures yearly wrought by them, that they have an undoubted Title to a Place in the first Class of Medicinal Waters.

Nor is it necessary, that Medicinal Waters should contain so large a Quantity of the Particles they have imbib'd, as may be evident from *Sunder's* Experiments, by Experiment, that Regulus of Antimony, frequently dissolved in Wine, loses nothing of its Virtue in solubility, tho' the Wine prove strongly Emetic. Hence, therefore, do many Physicians erect Labora-

tories, and take great Pains, to discover what that adventitious Matter is, which these Waters carry with them.

The Diseases in which *Bristol* Waters are more properly prescrib'd, are internal Hæmorrhages and Inflammations, Blood-spitting, Dysentery, and immoderate Fluxes of the Menstrues, purulent Ulcers of the Viscera: Hence in Consumptions, Dropsy, Scurvy with Heat, call'd by Dr. *Willis*, *Scorbutus sulphureo-jalinus*, Stone, Gravel, Strangury, the Habitual Gout, that kind of Rheumatism which Dr. *Sydenham* terms Scorbutic, Diabetes, slow Fevers, Atrophy, Pox, Cancer, Gleets in both Sexes, and King's-evil, in these Disorders *Bath* Waters are not only improper, but hurtful; they rouse the too languid, and quicken the too lazy Circulation; these allay the Heat, and restrain the too rapid Motion of the Blood: Those impregnate the phlegmatic; these attemperate the choleric Constitution. *Bath* Waters seem to be adapted to the Maladies of the Stomach, Guts, and Nerves; *Bristol*, to those of the Lungs, Kidneys, and Bladder. Again, *Bath* Waters are at Variance with a Milk-course; and the *Bristol* can never be judiciously directed, but where that may be joined with Reason and Success. This is so great a Truth, that it holds even in the Diabetes, in which Milk is of great Service, and prescrib'd as early as the Age of *Arctæus*, who, say the Learned, is at least as ancient as *Galen*: Tho' that this Disease was little known to Antiquity, is certain, since it is not once mention'd by *Hippocrates*: *Galen* says he never saw it but twice; and Rabbi *Moses* affirms the Diabetes is very seldom seen in the Western Parts of the World, but oftener in the hot and Eastern Countries, insomuch that, in *Egypt*, in ten Years Practice, he saw more than twenty Patients of this kind; but we see a greater Number, almost every Year, in our Western World.

Perhaps some may be surpris'd to find *Bristol* Waters prescrib'd in Dropsies, in which Authors order also those of *Bath*; but which of the two, with best Judgment, is worth while to inquire. That diuretic and drying Medicines are of great Service in this Disease, no one can doubt; that *Bristol* Waters have these two Qualities in a greater Degree than the other, is also as evident. For which Reason I should prefer the *Bristol* to *Bath*, in this Instance, unless where it happens, as it too often does, that a Jaundice attends it; and here *Bath* claims the Precedence, from its great Efficacy in opening Obstructions of the Viscera, where there is no formidable Inflammation.

But there is another Question of more Importance, and that is, Whether *Bristol* Water be specific in the Diabetes? A specific Remedy for each Disease would prove in Physic, what finding the Longitude must in Navigation: We should go directly to the Cure, without the Circle of the alterative Course: But, at present, there is as little Probability of discovering the one, as the other. We know but one Specific, and but one Disease cur'd by it, unless I can prove this to be such in the Diabetes.

The Diabetes, then, is defin'd to be the too quick and large Excretion of crude, unalter'd, and sweet-tasting Water, exceeding the Proportion of the Fluids taken into the Body, accompanied with intolerable Thirst: And a specific Medicine is that which cures a Disease, without promoting any sensible Evacuation.

Suppose then a Person labouring under a Diabetes, voids a given Quantity of such Urine, (for Example, four or five Quarts in twenty-four Hours) let him drink as many of this Water, and he shall excrete less daily; from whence it is manifest, that it proves no Evacuant. Another Argument to prove it specific is, that, in this Instance, we need not observe the Rule of drinking Mineral Waters in small Quantities; for 'tis specific, and may be taken in as large Doses as the Stomach will bear; and this is no bad News to a Person dying with Thirst. In all other Disorders, where it acts by its contempering, alterative, and healing Qualities, the Rule holds good. A third is, that we see, by daily Experiments, its Effect in Diabetes more quick and sudden than in any other Distemper, the Patient being certain of a Cure in a very short time.

The proper Seasons of drinking *Bath* and *Bristol* Waters are generally known. *Bath* Waters may be drank, with Benefit, the whole Year; I think best in the cold, or, at least, the cooler Months of *April*, *May*, *September*, and *October*. The *Bristol* are to be taken medicinally, only during the hotter Months, as from *April* to *September*. *Wynter's Cyclus Metasynticus*.

BRITANNICA. *Bretannica*.

The *Bretannica*, or *Bettonica*, is an Herb with Leaves like the wild *Lapathus*, but blacker and more hairy, and of an astringent Taste. It sends forth no great Stalk, and its Root is but short and slender. The Juice is expressed from the Leaves, and inspissated in the Sun, or by the Fire-side.

It has an astringent Virtue, and is particularly accommodated to eating Ulcers of the Mouth and Tonsils. It is effectual also to all those Purposes for which Astringents are required. *Dioscorides*, Lib. 4. Cap. 2.

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Not only Beasts, but even Waters and Places, shew their Malignity to Mankind. When *Germanicus Cæsar* had removed his Camp beyond the *Rhine* in *Germany*, they had only one Spring of fresh Water in that maritime Tract of Land, by drinking of which, within the Space of two Years, their Teeth fell out of their Heads, and the Joints of their Knees were enfeebled and relaxed. The Physicians call'd these Disorders *Stomacace* and *Scelotyrbe*. There was a Remedy at length discover'd, which was the Herb *Britannica*, a most salutary Medicine not only to the Nerves, and in Diseases of the Mouth, but also against an Angina, and the Poison of Serpents. It has oblong black Leaves, the Juice of which they express, as also from the Root. They call the Flowers *Vibones*, which, being gather'd and eaten before Thunder is heard, secures the Person from being thunder-struck. The *Frissians* who were in the Camp, shew'd it to our Men; and I cannot but wonder how it came by its Name, unless the People who are Borderers on the *Britannic* Sea, gave it the Name of *Britannica*, out of Respect to the neighbouring Island of *Britannia*; for it is certain, *Britannia* now lying open, that it does not take that Name because that Island abounds with it. *Pliny*, Lib. 25. Cap. 3.

The Virtues attributed to this Plant agree pretty well with those of the *Hydrolapathum*, Offic. *Hydrolapathum magnum*, Ger. 312. Emac. 389. *Hydrolapathum majus*, Park. 1225. *Lapathum aquaticum, folio cubitali*, C. B. 116. Hist. Oxon. 2. 579. Tourn. Inst. 504. Boerh. Ind. A. 2. 85. Dill. Cat. 111. Buxb. 178. *Lapathum palustre maximum*, Schw. 218. *Lapathum maximum aquaticum, five Hydrolapathum*, J. B. 2. 986. Raii Hist. 1. 171. Synop. 35. *Lapathum maximum aquaticum*, Chab. 309. *Britannica antiquorum vera, five Lapathum longifolium nigrum palustre*, Munt. Herb. Brit. 150. GREAT WATER DOCK. Dale.

It has a thick, round, broad, juicy Root, spongy when old, about a Hand's Breadth in Length, divided below into several pretty thick Parts, and surrounded with fibrous little Roots; the Colour of it, when newly taken out of the Ground, is black on the Outside, and white within, but soon alters into a reddish-yellow, like that of the true Rhubarb; and the Root, when dry, turns quite brown. The Leaves are not many; but the longest of all belonging to any of the kinds of Docks, situated near to one another, tho' not closely joined, but separate, always pointing upwards, of a Foot and half, or two Feet in Length, and three or four Fingers broad, being widest in the Middle, and running up to a sharp Point, like the Head of a Spear, of a deep Green, or Sky-colour, inclining to a dark Green above, but paler underneath, with pale-green Fibres, of a pretty thick, hard, dense, close, and firm Substance, the Edges sometimes, especially of those which grow to the Stalk, a little curl'd; they stand on Pedicles which are of a moderate Length and Thickness, and sometimes red near the Ground; they have also an Astringency, with something of an Acidity, and fall off towards the End of *August*. The Stalk is single, or multiply'd, according to the Age or Bigness of the Plant, two, three, and sometimes four Feet in Length, strait, round, green, hollow, adorn'd on both Sides with lesser Leaves, which bend a little upwards as well as downwards, from whose *Axe*, here and there, proceed little Sprigs, laden with little, short, and tender pendulous Leaves, and pale Flowers, which open towards the End of *July*, and are thinly dispos'd about the Joints, but not in the manner of Whorles. The three outer Petals of the Flower are conspicuous on both Sides, for two hairy pale-whitish Gemmule; but these are observ'd in no Species of the *Lapathum*, but the *Virginian Britannica*. The Seed is small, triangular, and of a spadiceous Colour.

Abr. Muntingius is persuaded, that this Plant is the true and genuine *Britannica* of the Antients, since both its Figure and Virtues answer, in all Points, to the Descriptions which they have left us of it. He endeavours also to prove, that the Word *Britannica* is of *Frissian* Original; for it is not likely that this Plant took that Denomination from the Island of *Britain*, to which, as a respected neighbouring Land, the *Frissians* dedicated it, as *Pliny* conjectures. *Brit*, in the *Frissian* Language, signifies to consolidate, render firm and compact; but *Tan* is a Tooth; and *Ica*, or *Hica*, signifies Ejection. Hence *Britannica* is as much as to say, the Herb which consolidates and confirms the loosen'd Teeth, or cures the Disease that makes the Teeth fall out.

Every Part of this Herb, as the Stalks, Leaves, Flowers, Seed, but principally the Roots, are powerfully astringent, consolidating, and conglutinating; for which Reason it restrains and heals all Sorts of Putrefactions, as Erysipelas, ulcerated or not, Herpes, Phagedenic Ulcers, and Gangrenes. It stops Hemorrhages from any Part, as also the Hemorrhoids and Menfes, and is effectual for all those Purposes in which other cold Astringents are requir'd.

It cures all manner of Diseases of the Nerves, as Twitchings, Contractions, Tremblings, Convulsions, Palsies, febrile Heats, or Rigors. It chafes away Serpents and other venom-

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ous Animals, and heals their Bites; for which Reason it is reckon'd among Alexipharmacs. It gives Relief under all Species of the Angina, Relaxation of the Uvula, Swelling of the Tonsils, and other like Diseases of the Mouth, Fauces, and Stomach, which require Astriction; as also Abscesses, Tumors, and Ulcers. It removes various sorts of Defluxions; and, lastly, Diseases which proceed from hidden Causes, as the *Stomacace*, the *Scelotyrbe*, (the Scurvy affecting the Mouth and Legs) and Ulcers in the Legs.

The green Leaves are apply'd to ulcerated Parts for twelve Hours, and then changed; the Juice also harden'd by the Dog-days Sun, or inspissated by the Fire, is used to anoint the Sore.

Now because the Scurvy, says *Muntingius*, has taken such deep Root in some Persons, that they can receive but little Benefit from a Decoction of *Britannica* alone, I am willing to communicate the Preparation of a Medicine, never yet, that I know of, made public, that all may have the Knowledge of so useful a Medicine, and be able to prepare it for themselves; for the Remedy is more precious than Gold, and ought to be kept in Houses, as an inestimable Treasure, in Readiness against all Attacks, or bare Suspicions, of the Scurvy.

Take of Saffron, two Ounces; Mace, Liquorice, the best Cinnamon, black Pepper, Gentian-root, each three Ounces; *Britannica*, six Ounces: Pulverize them all grossly, and infuse them in sixteen Pints of *Spanish* White-wine, together with three Pints of *Ekler* Vinegar, or some other very strong Vinegar; and add thereto three Yolks of new-laid Eggs. Let them lie macerating together in a glazed Stone Vessel, well closed, for seventy-two Hours, in hot Ashes, Horse-dung, or hot Sand, but with no greater than a tepid Heat; after which set it aside for Use.

Let the Patient take of this Decoction three, four, five, or even six Ounces, according to the Nature of the Subject, in the Morning fasting, for fourteen or twenty Days together, or more. To quench his Thirst, let him drink every Day of the best *Rhenish* Wine; or, if he be accustomed to Beer, let him take it not new, but defecated, and well boiled; and as often as he drinks it, he must also have three Spoonfuls of this Wine.

But it is here to be observed, that if the Patient labours under a Dryness, a violent Cough, or is suspected to be in a Consumption, instead of the Pepper, let six Ounces of Liquorice be added; when the Wine is almost consumed, an equal, or twice the Quantity of Wine, may be pour'd to the Ingredients.

By the Use of this Wine, not only an inveterate Scurvy, especially if it be without a Fever or Inflammation, but also all other scorbutical Disorders, inveterate Hernia's, Palsies, and Lues Venerea, are most successfully cured. *Raii Hist. Plant.*

Its Leaves are styptic, a little bitter, and give a deep Tincture of red to blue Paper. The Root gives it a little fainter; it also is very styptic and bitter. Its Bark is thick, of a Flesh-colour, streaked; its Heart is soft, and of a pale Yellow.

It is probable, that the Salt of this Plant may be composed of Alum and Sal Ammoniac, mix'd with a great deal of fetid Oil. *Martyn's Tournefort.*

I believe this Plant is very effectual in scorbutic Symptoms; and am convinc'd by Experience, that it will effectually cure bleeding of the Gums, if chew'd in a Morning.

Muntingius has wrote an intire Volume in 4to. on the Subject of this Plant.

ΒΡΙΘΟΣ, βριθος, a Weight, a Load, Lib. 1. περὶ γυναικ. καὶ βριθος ἐν τῇ γαστρὶ ἐγγενήσται, "and there be a (Sense of) Weight in the Belly." And in the same Book, καὶ βριθος γενήσται ἐν τῇ σπλῆνι, "and there be a Heaviness in the Uterus." Hence the Verb βριθω, which, in many Places of *Hippocrates*, carries much the same Sense.

BRIZA, Offic. *Briza monococcus*, Ger. 67. Emac. 73. *Zea Briza diela, seu monococcus Germanica*, C. B. Pin. 21. Theat. 415. Hist. Oxon. 3. 205. *Zea monococcus, five simplex, five Briza*, Park. Theat. 1124. *Zea monococcus Briza quibusdam*, J. B. 2. 413. Raii Hist. 2. 1242. *Zea simplex & monococcus Briza*, Chab. 174. *Hordeum distichum, spica nitida, Zea seu Briza nuncupatum*, Tourn. Inst. 513. Boerh. Ind. A. 2. 159. ST. PETER'S CORN.

It is cultivated in *Germany*; and the Seed is used, which agrees in Virtues with the *Zea*, or *Spelta*.

BROCHOS, βροχος. The same as *Laqueus*, Bandage. See *LAQUEUS*, and *FASCIA*.

BROCHTHUS, βροχθος, in *Hippocr. Lib. 2. de Morb.* is a small kind of Drinking-vessel. βροχθος also signifies the same as βρογχος, "the Throat;" whence κατὰ βρογχιζω, and κατὰ βροχθίζω, in *Coac.* are both used to express the Action of Deglutition.

BROCHUS, βροχος. One who has a prominent upper Lip; or, as others would have it, one with a full Mouth, and prominent Teeth. *Castellus*.

BRODIUM.

BRODIUM. A Pharmaceutical Term, signifying the same as *Fusculum*; or the Liquor in which some solid Medicine is preserved, or with which something else is diluted. *Castellus*.

BROMA, βρώμα, Food, any thing eatable, by way of Distinction from πόμα; Drinkables. *Galen, Lib. 1. de Alim. Fac.* expounds βρώμα by τὰ ἐσθίμενα, ἢ ἐδεσς, ἢ τροφὰς, ἢ σίτια, which are different Words for Eatables. In *Hippocrates, Lib. 2. Epidem.* τὰ βρώματα καὶ τὰ πόματα πείρως δὲ, εἰ ἐπὶ τὸ ἴσον μένει, “whether Meats and Drinks are of equal Continuance, (equally long in Passage) must be judg’d from Experience.” And *Lib. 5. Epid. Sect. 5. Aph. 35.* βρώματα τὰ μὲν ταχέως κρείττειται, τὰ μὲν ἐναντίως, “of Foods, some are soon overcome, (digested) with others the contrary happens.” And *Aph. 31.* ψυχρὰ τὰ βρώμα φασι, κίχχοι, κολοκύθαι, “Lentils, Millet, and Gourd, are very cold Foods.” *Lib. περι ἀρχ. ιατρ.* ἰσχυρὰ βρώματα are strong hard Meats, which require a strong Digestion; and, in the same Book; ἰσχυρὸν βρώμα signifies strengthening Foods. In the same way of speaking, βρώματα are said to indicate πλῆρσιν, “a Plenitude.” βρώμα also, *Lib. 4. Epid.* signifies an Erosion of a Tooth; as it does also in *Galen, Lib. τῶν εὐπορίων*, where he says κατὰ πλάσσει τὸ βρώμα, “apply some Cataplasin to the corroded Tooth.”

BROMION, βρόμιον. The Name of a Plaster, in *P. Ægineta, Lib. 7. Cap. 19.*

BROMUS, Offic. *Bromus sterilis*, or WILD OATS, *Ger. 69. Emac. 76. Mer. Pin. 16. Bromus herba sive Avena sterilis*, Park. Theat. 1147. *Ægilops*, Chab. 177. *Ægilops Matthioli forte*, J. B. 2. 439. *Festuca avenacea sterilis elatior*, seu *Bromus Dioscoridis*, C. B. Pin. 9. Theat. 146. Raii Hist. 2. 1289. Synop. 3. 412. Hist. Oxon. 3. 212. *Festuca & Avena Græca*, Merc. Bot. 1. 35. Phyt. Brit. 41. *Gramen avenaceum, panicula sparsa, locustis majoribus & aristatis*, Tourn. Inst. 526. Buxb. 142. *Gramen Festucæ sterile elatius*, Tourn. Hist. Plant. Bar. 91. **DRANK**, or WILD OAT-GRASS.

The Bromus is a Plant much like the *Ægilops*, being of a drying Quality; for which Reason, if it be boiled with the Roots in Water to a third Part, and then strained, and mixed with an equal Quantity of Honey, and again boiled to the Consistence of liquid Honey, it makes a good Remedy for an Ozæna, by dipping a linen Cloth in the Decoction, and then putting it up the Nostrils. This Effect it has by itself; but some mix Powder of Aloes with it, and use them in the same manner. Boiled in Wine with dry’d Roses, it amends a fetid Breath. *Dioscorides, Lib. 4. Cap. 140.*

A Decoction of the Root is recommended for the Worms in Children. *Nale. See ÆGILOPS.*

BRONCHIA, βρογχίαι. So *Hippocrates* calls the great Artery, (*Lib. περι ἀνάτομης*) ἀπὸ δὲ καρδίας ἐς ἥπαρ βρογχίαι πολλὰ καθήκει, καὶ μετὰ βρογχίαις φλέψ μεγάλη κατευμένη, δι’ ἧς ἔλκει τὸ σπῆν & τρέφεσθαι. “From the Heart to the Liver extend numerous Branches of the Bronchia (Aorta); and with them the great Vein, as it is called, (*Vena Cava*) by which the whole Body is nourished.” This Place *Galen*, in his Exegesis, seems to have in his Eye, when he expounds βρόγχους by τῆς βρογχώδους ἀρτηρίας, “the bronchoidal Artery;” where for βρόγχους, I suppose should be read βρογχίαι. See **BRONCHOS**.

BRONCHOCELE, βρογχόκηλη, from βρόγχος, the Wind-pipe, and κήλη, a Tumor. A Tumor in the Neck, principally in Women, frequently call’d a *Derby Neck*, probably on account of the Inhabitants of that Town, or rather County, being much subject to it; which is not unlikely to happen for the same Reasons, that the Inhabitants about the Valleys of the Alps, and other mountainous Countries, are so much affected with these Tumors, as to have been taken Notice of proverbially by *Juvenal*.

Quis tumidum Guttur miratur in Alpibus?

Whether this proceeds from the Coldness of the Waters which they drink, or from some Mineral with which their Waters are impregnated in the Bowels of these Mountains, I will not pretend to determine.

In the Neck, between the Skin and the Aspera Arteria, there rises a Tumor, called by the *Greeks* βρογχόκηλη (*Bronchocele*), which incloses sometimes an inert kind of Flesh; sometimes a sort of Humour, resembling Honey or Water; and sometimes Hairs mix’d with small Bones; but whatever may be the Contents within the Coat of this Tumor, they may be treated with Caustic Medicines; which, penetrating the outer Skin, with the subjacent Tunica, or Coat, make a Way for the included Matter, if it be a Humour, to run out; or if it be of a denser Substance, to be drawn out with the Fingers; which done, the Ulcer is healed up with Dressings of Lint. But the shortest way of Cure is by the Knife. The Tumor is laid open by one strait Incision in the Middle, as far as the Tunica. Then the corrupt Sinus, being separated from the sound Parts with the Finger, is taken out entire together with its Tunica; after which the Place is washed out with Vinegar, with which some mix Salt or Nitre; and the Lips of the

Wound are joined by a single Suture, upon which must be applied what is usual in other Sutures; and the Whole must be bound up in a gentle manner, so as not to bear hard upon the Fauces. If the Tunica cannot be taken out, you are to sprinkle the Cavity with Cathartics, and dress the Wound with Lint, and other Suppuratives. *Celsus, Lib. 7. Cap. 13.*

There is a large and round Tumor of the Neck, which takes its Name from the inward Parts, and is called *Bronchocele*, of which there are two Kinds, the *steatomatous*, and the *eurysmatous* (εὐρυσματώδης). This latter is known by the same Marks as an Aneurysm; and the Cure of it, for the same Reasons, is look’d upon as desperate; for as almost all Aneurysms are dangerous in the Operation, so especially is an Aneurysm about the Neck, because of the Largeness of the Arteries. The steatomatous Tumor is to be treated like a Steatoma, by separating and passing beyond the Vessels, in the same manner as we are directed in strumous Cases. *P. Æginet. Lib. 6. Cap. 38.*

Albucasis, treating of a Bronchocele, or a Rupture in the fore Part of the Neck, which, he says, is most frequent in Women, is fuller than the *Greeks* or *Celsus*; and he very rightly distinguishes between that which is natural, and that which is accidental. The first Sort is not to be touch’d. Of the second there are two Species; one like a Tumor, which contains some gross Substance; the other like an Aneurysm. But though he is so bold in using the Knife, he advises the Operation only in the former Case; and even not there neither, unless the Tumor be loose, and little, and inclosed in a Cyllis. This Sort of Swelling may, no doubt, be removed by Art. Sometimes these Excrecences are full of Water, sometimes they have nothing in them but Air; and these Cases may likewise be remedied by Incision, Friction, or Compression. Sometimes they turn to a fleshy Substance, which, lying between the Skin and the Wind-pipe, resembles a Flap or Dew-cap hanging out, just like that of a Turkey-cock, when he is angry. This is a frequent Distemper in those Countries where they drink great Quantities of cold Water; especially where they do not cool their Water in Snow, as in other warm Climates; but pour Ice into it, as the way is with the ordinary People, who live upon the bleak Mountains of *Genoa* and *Piedmont*. The Matter of Fact is as true, as that they themselves attribute it to the drinking this Water; and from the Nature of Cold, it is not difficult to account for this Effect: For the Liquor in going down, must needs chill the Muscles of the Throat, that is, it contracts the Vessels, and thickens the Humours which circulate through them at the same time; from whence must follow a Stagnation or Obstruction, and, after a while, a Swelling, in those Parts. And it is remarkable, that Tumors, which owe their Origin to this Cause, are and always continue fleshy; whereas other Bronchoceles, which proceed from Strains, Bruises, and such-like Accidents, often suppurate, or turn to a Melicoris, Steatoma, &c. as *Albucasis* observes. Among the *Spaniards*, Swellings in the Glands of the Throat are very frequent, who indulge themselves immoderately in the Use of cold Liquors. And that the Coldness not only of the Liquors, but of the Climate itself, may produce these Effects, seems to be plain, from the Observations we find in Writers, that these Swellings about the Throat and Head are much more frequent among the Northern Nations, than the Southern.

Tumors very often happen in the Thyroidal Glands; but such a Swelling is not properly a *Bronchocele*, though sometimes so mis-called, but a *Struma* or *Scrophula Colli*. In morbid Bodies I have seen these Glands enlarged to an extraordinary Bigness, so as to reach down almost to the Clavicles; and in such Cases they generally turn scirrhus. When the Swelling here is thus confirm’d, we may easily learn from Anatomy, were we not warn’d of it, that the Distemper is in its own Nature incurable; for, I believe, neither any inward Medicine, nor outward Application, can dissolve it; and Repellents would rather do Mischief, and throw the Humour upon some other Part. Neither would any prudent Surgeon, I presume, attempt to extirpate such a large Tumor, for fear of cutting an Artery or Vein, or the recurrent Nerve. And *Albucasis* gives us a sufficient Caution, in telling the Story of an ignorant Operator, who, in this Case, by wounding the Arteries of the Neck, killed the Patient upon the Spot. *Freind’s History of Physic.*

The *Bronchocele* is a Tumor situate upon the investing Membrane of the Windpipe, or betwixt that and the Muscles of the said Part; where it sometimes takes so large a Compass, as to extend itself from one Jugular to the other, lying high and prominent, like a Hemisphere, or half Globe, or at least of a spheroidal Figure.

It takes its Rise commonly from loud Crying, Coughing, and Vomiting; as also from a sudden Jerk, or hasty Turn of the Neck, as I have been inform’d by some therewith affected.

It is called also *Hernia Bronchialis*; but if there be a Rupture in the Case, as that Name will imply, it is most likely to be that of some lymphatic Vessel, diffusing or shedding its Contents betwixt the Membranes of the Aspera Arteria, and the Muscles incumbent, where being leisurely accumulated, it distends

distends the containing Parts, and, from the broken Fibres thereof, makes itself a Cover, which grows along with it in like manner, as the other Capsulate Tumors.

There are others who derive their Origin from some nutritious Juice extravasate, and turning into a Flesh-like Substance, after the manner of certain other Sarcomata; and indeed both these may be right, since we often find the Body thereof made up partly of a fluid, and partly of a more firm and glandulous Substance: But to proceed to the Prognostic and Cure thereof.

The *Bronchocele*, by reason of its unhappy Situation among the large Blood-vessels, the recurrent Nerves, and Windpipe itself therein concern'd, at least its investing Tunicle, affords a very hazardous and uncertain Issue; and if it admit not of Dissection, there is little Encouragement to meddle farther: For if it suppurates, there is left commonly a very fordid and sinuous Ulcer, which since you cannot dilate so conveniently as in other Parts might be done, nor have any Advantage by rolling, which the same will not allow, you may be put upon risking your Patient's Life, or leave him in a Condition worse than you found him, with an incurable gleetig Fistula, or Dyscypnotic Ulcer; so that if any thing be done in order for the Cure, it ought always to be attempted first of all by some proper Dissectant. For this Use also serves the Empl. Antimonial of Dr. Fuller, to be met with in his *Pharmacopœia extemp.* but indeed these Tumors are most commonly left to themselves; the great Danger by Incision on account of their Situation, and the Difficulty of healing when they come to suppurate, having very much discourag'd their Undertaking. Wherefore the much greater Number now content themselves without any Surgery, when apprised of their stubborn Nature, and the Uncertainty of Success.

'Tis much more rare to find these Tumors in the Necks of Men than Women, or at least-wise, being less obvious to Sight, they pass unheeded, and we are not so often consulted about them. I am sure, to one that I have observed in our Sex, I have met with half a Dozen on the Throats of Women.

That the Nature of this Tumor may be the better apprehended, I will here transfer an Account thereof, presented by the ingenious Dr. Douglass to the Royal Society, in these Words.

I had lately (*scilicet*) the Opportunity of opening a Woman about fifty Years old, who had a very large Tumor, or hard Swelling, in the fore Part of the Neck, possessing all the Space between the whole Extent of the lower Jaw, and the upper Part of the Sternum, with a considerable Rising in its Middle, laterally its Point inclining to the Left Side, though the biggest Part of the Tumor was on the Right. The Skin on the Apex of this protuberating Part was thin and shrivel'd, of a Colour different from the rest, and look'd as if the Swelling would have broke in that Place.

The Skin was exceeding thin, having no Fat under it, only in a Cavity between two Lobes, to be afterwards describ'd. On its Right Side there was a small Appearance of some; for the Skin being less stretch'd there, the Cells of the Membrana Adiposa were not quite emptied. The fleshy Fibres of the *Lutissimus Celli* were scarcely visible, the *Myoideus* and *Cervicoides* were extremely thin, and in their Ascent they adher'd very firmly to the subjacent Tumor. The *Sternohyoidæus*, and the *Sternothyroidæus* that run up the fore Part of this Swelling, were distended so thin, that it was difficult to separate them, especially the last named. The Right Carotid Artery, in its Ascent to the Head, ran along the outer Edge, which increasing, much obstructed the Current of the Blood that Way.

The internal Jugular, the Par Vagus, and the Intercostal Pair, went also over some Part of this Swelling, in their Descent to the Thorax; two of the Lymphatic Glands of the Jugular Vein were swell'd to the Bigness of little Eggs, being placed at some Distance one from the other, with a Hollow between, where some Fat was found; these two Lobes made the Tumor very uneven also on its Right Side.

These Muscles, the Jugular with the Glands adhering to it, and the rest of the forenamed Vessels, being remov'd on both Sides, I could easily observe the Bigness, the Figure, and the Circumscription or Limits of this preternatural Tumor, with all its Adhesions to the adjacent Parts. In Magnitude it seem'd to exceed that of two Fists join'd together: Its Figure was almost triangular, with a broad Basis under the Chin, sloping a little on each Side, as it descended to the upper Part of the Sternum, where its Point was pretty narrow; its Surface was made uneven by three Risings, of which the largest was turn'd to the Left Side, the other being plac'd on the Right, as above remark'd. It adher'd by membranous Filaments to the maxillary Glands, to the *Digastric* Muscle, and to the *Stylohyoidæus*, under which, on the Right Side, a small Portion of it, in the Form of a Nipple, did intrude itself, as it were, under the Tongue; in the upper and fore Part it also adhered to the *Os Hyoides*.

Laterally it was connected to the *Levator Scapulae*, and lower down to that Part of the *Cucullaris*, which terminates in the Clavicles backwards, to all the fore Part of the *Aspera Arteria*, between its third and fourth cartilaginous Rings, and the *Os Pectoris*, as also to that Muscle of the Head called *Rectus internus major*, and to some Part of the *Scaleni*; its lower Part was engag'd under the Jugulum, or lunated Part of the Breast-bone to which it adhered. It was easily freed from its Connexions to all these different Parts, but not so from the *Glandulae Thyreoidæ*, to which it adher'd after a far different manner; for where the Thyreoidal Glands are joined to one another, a little below the *Cartilago Cricoides*, on the fore Part of the *Aspera Arteria*, there was no separating of it without cutting its Substance; whence it plainly appears, that the Union of these Glands was the Root or Beginning of this Tumor; and yet, which is very remarkable, the Glands themselves kept their usual Figure, and were no larger than ordinary.

This Tumor was hard, and very firm, being exactly of the Consistence of a Cow's Udder when boiled; yet in a few Places it was softish, containing a liquid and thick Juice. Its Colour was chiefly of a whitish-yellow, only in some Places it was exceeding red, from its having a greater Store of Blood-vessels, and in others it was very white. I pared off all the soft Part, and the hard Substance, that remain'd, I boil'd, and then clear'd it very well, having left sticking to it at one Centre a soft cartilaginous Body, which possibly, had the Patient lived longer, would have acquir'd the same Degree of Induration. It very much resembles a Piece of white unpolish'd Rock Coral; but whether it may be reckon'd osseous, or if it be rather the viscid Humour of the Glands, hardened and concreted into this irregular, chalky or gravelly Substance, or whatever else it may be, I leave to better Judgments.

The first Appearance of this large Swelling was about thirty Years ago, caused by the breaking of a Vein, as the good Woman used to express it, in a hard and very difficult Labour. It increased very slowly, not arriving to any considerable Bulk, till a few Years before she died: It was never very painful, being a true Scirrhus. Many Things by several Persons had been used, and applied unsuccessfully: Its Bigness at length became very troublesome, in impeding her Swallowing and free Breathing, and at last it quite choked her, by compressing the Windpipe, upon which it lay. *Turner's Surgery.*

I was formerly acquainted with a Woman who was in great Reputation for resolving these Tumors. Her Secret consisted in anointing the Part frequently with the Oil of Chamomile made by Infusion.

But the most celebrated Remedy for this Disorder is one which is sold at *Coventry*, and, which is kept as a Secret by the Preparer. It is order'd to be laid under the Tongue every Night going to Bed.

I am pretty well inform'd, that this secret Remedy is thus prepar'd.

Take of Sponge, Cork, and Pumice-stone calcin'd, each equal Parts. Half a Dram of this is mix'd with Sugar, and, with the Addition of some Syrup or Conserve, is made into a Bolus, and laid under the Tongue every Night.

What makes me the more inclinable to believe this the true *Coventry* Receipt is, that *Musitanus*, as I remember, has one much like it, which he directs to be used in the same manner for such Tumors. And I remember there is a Receipt in some of the old *German* Dispensatories, not very different from this, with an Addition of the *Pilæ Marinae*, which is order'd to be laid under the Tongue, as a Remedy *ad Botium*, for the *Bronchocele*; but I cannot at present recollect the Authors.

Ronodæus also gives a Receipt for the same Purpose, which he intitules, *Pulvis pro Botio D. D. Wolfgangi Gabelcheveri*, as thus.

Take of Sponge and Lapis Calaminaris calcin'd, each two Ounces; of Pumice-stone, and Lapis Spongiae, each four Ounces; fine Sugar, three Ounces: Mix, and make a Powder.

But they all agree in making the Sponge a principal Ingredient.

BRONCHOTOMIA, *βρογχιτομία*, from *βρόγχος*, the Throat, and *τέμνω*, to cut, Bronchotomy. See ANGINA.

BRONCHUS, *βρόγχος*, *βρόγχιν*, *βρογχίν*. The Word *βρόγχος*, according to *Galen*, in the Beginning of his seventh Book *de C. M. S. L.* is the *Aspera Arteria*, which reaches from the Larynx to the Lungs, consisting of a Multitude of cartilaginous Bodies, called *βρόγχια* (*Bronchia*). The same Author, *Com. 3. in Lib. de Art.* says that *βρόγχος* is put for the entire *Aspera Arteria*, or only for the Fauces. *βρόγχος*, in *Hippocrates*, signifies the Throat, whence, *Lib. de Artic. ἐξ ἑβρογχος* is expounded by *Galen*, *τὸς ἐξ ἑβροχίας ἐς τὸ πρὸς τὸν βρόγχον ἔχοντες*, "those who have a prominent Throat. And,

And *Lib. 5. Epid.* ὁδὴν αὐτὸν τὸν βρόγχον, “a Tumor under the Throat.” And *Lib. de Rat. Viſ. in Morb. acut.* ὡς περ ἐν διατρίψεσιν τὸν βρόγχον, “dilate, as it were, with expanded “Wings the Throat.” See PULMONES.

The *Bronchia* or *Bronchi*, as now understood, are the Ramifications of the *Aspera Arteria*.

BRONTE, βροντή. Thunder; see TONITRU. I don't know, that this relates to Medicine, farther than as it purges some People by the Fright.

BRONTIS, from βροντή, Thunder. The Thunder-stone. See BELEMNITES, and CERAUNIA.

BROTOS, βρώτης, from βρώσσω, to feed. An Epithet of Man, signifying his Necessity of eating and drinking, and consequently his Mortality; but the Word is more in Use among the Poets than the Physicians.

BROUILLAMINI. A Term given by the *French* to such Masses of Bole, which are as thick and long as a Finger. They also call these *Bol en Bille*.

BRUCHUS. A sort of Caterpillar. *Forestus* in his Observations relates, that a *Bruchus* was thrown up by vomiting as big as a little Ball, inclosed in a Bit of Flesh as in a Pod. *Hartman*, in his *Praxis Obymiatrica*, writes that *Bruchi*, that is, *May-worms* dry'd, and given to such as are mad by the Bite of a mad Dog, will in a short time cure them of their Madness. But I am afraid he is mistaken.

BRUMA. The same as HYEMS, Winter, but especially that Part of Winter which is about the Solstice, when the Days are shortest.

BRUMASAR, a Spagirical Term, signifying *Silver*, or, the *Moon*. *Castellus*.

BRUMATI' terrem. A glazed Vessel. *Rulandus*.

BRUNELLA. The same as PRUNELLA, which see.

BRUNSFELSIA. A Plant which takes its Name from Dr. *Brunsfelsius*, a famous Physician.

The Flower consists of one Leaf, shap'd like a Funnel, which is tubulous, and cut into many Parts at the Top, from whose Calyx arises the Pointal, which afterwards becomes a round, soft, fleshy Fruit, containing roundish Seeds between the Rind and the Flesh.

There is but one Species of this Plant, which is, BRUNSFELSIA *Flore albo*, *Fructu croceo molli*, Plum. N. G. *Brunsfelsia* with a white Flower, and a soft Saffron-colour'd Fruit.

It is very common in *Barbadoes* and *Jamaica*, but I find no Medicinal Virtues ascribed to it.

BRUNUS, *Ignis sacer*, St. *Antony's Fire*, or *Erysipelas*. *Rulandus*.

BRUSATHAER. The Name of a Tree that grows in *China*. *Ray's Index to his Hist. Plant.*

BRUSCANDULA. The same as LUPINUS, a Lupin, which see. *Blancard*.

BRUSCUS, *Ruscus*, Offic. *Ruscus sive Bruscus*, or *Knee-holme*. Ger. 752. Emac. 907. Mer. Pin. 107. *Ruscus*, J. B. 1. 579. Chab. 46. C. B. Pin. 470. Park. Theat. 253. Raii Hist. 1. 664. Synop. 3. 262. *Ruscus myrtifolius aculeatus*, Tourn. Inst. 79. Elem. Bot. 70. Boerh. Ind. A. 2. 63. *Ruscus*, *Bruscus*, *Oxymyrsine*, Merc. Bot. 1. 65. Phyt. Brit. 107. BUTCHERS-BROOM. Dale.

Ruscus, or the wild Myrtle, has a Leaf like the Myrtle, only broader, and pointed at the Top like a Spear; a round Fruit, which sticks to the Middle of the Leaf, and is red when ripe, with a stony Inside. From one Root proceeds a Multitude of twiggy Stalks, hard to break, a Cubit in Height, and cover'd with Leaves. The Root is like that of the *Agrostis*, and is of a tart and bitterish Taste; it grows in rough and craggy Places.

The Leaves and Berries, drank in Wine, provoke Urine, and the Menſes, and break the Stone in the Bladder. They also cure the Jaundice, Strangury, and Head-ach; a Decoction of the Root in Wine, if drank, produces the same Effects. The young Stalks, when they have just begun to shoot, are eaten instead of Asparagus, or other Greens; they are diuretic, and of a bitter Taste. *Dioscorides*, *Lib. 4. Cap. 146*.

The Roots of Butchers-broom are white, thick, and knobbed, matted together, and sending down large Fibres. The Stalks grow to be about a Foot high; they are tough, pliant, and hard to break, striated and thickly beset with small, stiff, rigid, nervous Leaves, about the Bigness and Shape of the small Myrtle, ending in a sharp and prickly Point, and sticking close to the Stalks. The Flowers grow on the Backs of the Leaves, being small and purple, made up of six Leaves apiece; and after them come round red Berries, like the Berries of Asparagus, containing two Seeds. This Plant grows in Hedges and Thickets, as on *Epping-forest*; plentifully flowering in Summer.

The Root of *Ruscus*, which is the only Part in Use, is one of the five opening Roots. It opens Obstructions of the Liver and Spleen, and helps the Jaundice and Dropsy. It is a strong Diuretic, provoking Urine, and helping the Stone and

Gravel; and brings down the Catamenia. *Tournefort* commends a Conserve of the Berries to stop a Gonorrhœa. *Mil-ler's Bot. Off.*

What *Dioscorides* has said of the *Ruscus*, does not disagree with the Plant now called by that Name: the Seeds in the Berries are very hard; so I believe we must read in *Cæsalpi-nus*, *quasi cornea substantia*, instead of *carnea*: The Root is one of the five opening Roots, good to remove Obstructions of the Bowels, and to evacuate by Urine. For the Dropsy, Cachexy, Jaundice, Stone, and Retention of Urine, it is prescribed in Broths, Ptisans and Apozems. For scrophulous Tumors, they give to drink, for several Days, a Pint of White-wine, in which a Dram of the Powder of the Roots of Butchers-broom, with the same Quantity of those of Figwort and Dropwort, have been infused. The Conserve of the Berries is good for Heat of Urine: the Seeds are used in the *Benedicta laxativa*.

The Flower is monopetalous, three Lines in Diameter, greenish, divided into three larger and three smaller Segments. It has a Violet-colour'd Sheath, instead of Chives, which sustains six Summits, and is rated with six rounded Ribs running lengthwise. *Vaill. Martyn's Tournefort*.

BRUTA, is that Virtue of the Celestial Influence which is manifested by brute Animals to the rational; as the Virtue of Celandine communicated to Mankind, by reason of the Swallow; the Use of Salt in a Clyster, taught by the Stork. *Rulandus*.

BRUTIA. An Epithet for the fattest and most resinous kind of Pitch, which was therefore thought fit to be used in making a fictitious Oil, called *Oleum piseum*, *Pliny*, *Lib. 15. Cap. 7*. We often meet with *pix Brutia*, in the ancient Physicians, which was so called from *Brutia*, a Country in the extreme Parts of *Italy*, where it was produced.

The *Brutii* were a People of *Calabria*, over-against *Sicily*, beyond the *Lucani*. *Pliny*, *L. 16. C. 11*. gives the ancient Method of making this Pitch, from the *Tarda*, Mountain-pine.

BRUTOBON. A barbarous Name for some Greek Ointment, the Preparation of which is unknown. *Castellus*.

BRUTUM, ἀλογον. An Epithet for Animals void of Reason, signifying the same as *irrational*, *Galen*. *Orat. Suasor. ad Artes*. He also calls them βροχίμαία (*Brochemata*), 4. *de R. F. I. A*. In the *Theatrum Chymicum*, Vol. 4. the Philosopher's Stone is call'd *Cor Brutum*. *Castellus*.

BRUXANELI, H. M. *Baccifera Indica*, *flosculis umbellatis*, *baccis umbilicatis dicoccis*. It is a tall Tree, about the Bigness of an Apple-tree, growing in the mountainous and woody Parts of the Kingdom of *Malabar*: It flowers in *July* and *August*, and the Fruit is ripe in *November* and *December*. The Tree lives a long time.

Of the Juice of the Leaves, mix'd with fresh Butter, is prepared a Liniment, which is used in the Cure of a Carbuncle. A Decoction of the Bark of the Tree is held to be diuretic. Of the Bark of the Root, mix'd with Ginger and Turmeric, in Butter-milk, they make a Poultice, which is highly commended for arthritic Pains. *Ray's Hist. Plant.*

BRYCHIOS, βρύχιος. Deep, sunk; the same as ὑπερύχιος. In *Lib. πειρὸς ὁρίων φουσ*. we read, ἀπὸ τῆς διατρίψεως τοῦ ἐν τῷ ἐνὶ τῇ κοίτῃ τοῦ ἀνθρώπου, βρύχιον ἵσταται “This “(Vein) extends itself by the Patella, and, passing by the “Muscle of the Tibia, runs deeply into the inner Parts.” *βρύχιον*, in *Erotian* upon *Hippocrates*, is expounded πρὸς βύθιον, κατὰ βάθος κείμενον, “as it were, submerged, and lying in “the Deep.” *Hesychius* expounds βρύχιον and ὑπερύχιον, by βυθίζομενον, “submerged, and sunk in deep.”

BRYGMUS, βρυγμός, is expounded by *Galen*, in his *Exegesis*, ὁ ἀπὸ τῆς ὁδύνης συγκριτομένης φωνῆς, “the grating Noise “made by the Gnashing of Teeth.” *Erotian* makes βρυγμός to be ἰσχυρὰ ποιεῖ φῶν, “a peculiar Kind of Noise;” that is, such as is made by the Gnashing or Collision of the Teeth. *Hesychius* expounds βρυγμός by τεισμός ὁδύνης ἢ ἀκόνησις μύλων “A Stridor Dentium, or a Grinding of the large Teeth, or “Dentes Molares.” *βρυγμός*, *Lib. πειρὸς γυναικ. φουσ*. signifies a Stridor Dentium; as κατὰ φύσιν καὶ βρυγμός λαμβάνει, “a “Fever seizes her, attended with a Stridor Dentium.” And it has the same Signification in many other Passages of *Hippocrates*.

BRYON, βρύον, is a Moss which grows to the Barks of Trees, being the grey Hairs of Trees, as *Pliny* expresses it, *Lib. 12. Cap. 23*. which appear most remarkably upon Oaks. *βρύον*, and *βρύα*, are used by *Hippocrates*, *Lib. πειρὸς γυναικ. φουσ*. and *Lib. 2. πειρὸς γυναικ.* in Suffumigations for the Uterus.

Bryon Thalassium, βρύον θαλάσσιον, in the Alga, or Sea-moss, which *Hippocrates* applies, by way of Cataplasm, to Women labouring under an Inflammation of the Uterus, *Lib. πειρὸς γυναικ.* calling it βρύον θαλάσσιον, ὁ ἐπὶ τῆς γυναικὸς ἐπιβάλλεται “Sea-moss, which they cast over Fishes.” *Galen*, *Lib. 3. Meth. Med.* directs the Bandage of an Ulcer to be ἀραιὰ καὶ μαλακὰ, “soft and yielding, like Alga;” to which is opposed πτωρὸς καὶ στενὸν ὡς θαλάσσιον, “one so hard as to press or squeeze “the Part.”

I have given an Account of what is at present meant by *Bryum*, in the Explication of Botanical Terms.

Bryon, by some call'd *Splachnon*, is found upon Cedars, white Poplars, and Oaks; that upon Cedars is the best, and that upon Poplars is next to it in Goodness. The white and fragrant is the most valued, but the blackish is not so good.

Bryon has an astringent Virtue, is temperate in Quality, between Heat and Cold; and the Decoction of it makes a good Infusion for uterine Affections, and is mix'd with Unguenta Balanina, and with Oils or Lixives, because of its inspissating Quality. It is also an useful Ingredient in the Preparation of Sulfumigations, and Medicines call'd *Acopa*. *Dioscorides*, Lib. 1. Cap. 20.

Bryon Thalassium, Sea-bryon, grows upon Stones and Shells by the Sea-side. It is a capillaceous Plant, slender, without Stalk, of a very astringent Taste, and effectual in Inflammations, Gouts, and other Disorders in which Astringents are proper. *Idem*, Lib. 4. Cap. 99.

Bryon must be reckon'd among Sea-herbs: It has Leaves like Lettuce, but shrunk and shrivel'd. It grows mostly on Rocks and Shell, which stick in the Ground. It is of a remarkably drying and inspissating Quality, by which it represses all Collections of Matter, Inflammations, Gouts, and other Disorders which want Refrigeration. *Pliny*, Lib. 27. Cap. 8. See ALGA.

BRYONIA ALBA, Offic. Ger. 720. Emac. 869. Raii Hist. 1. 659. Synop. 3. 261. Merc. Bot. 1. 24. Phyt. Brit. 17. Mer. Pin. 10. *Bryonia alba vulgaris*, Park. Theat. 178. *Bryonia aspera* *hirsuta*, *baccis rubris*, C. B. Pin. 297. Tourn. Inst. 102. Elem. Bot. 85. Boerh. Ind. A. 2. 61. *Bryonia aspera incana alba*, *baccis rubris*, Hist. Oxon. 24. *Vitis alba* *vel Bryonia*, J. B. 2. 143. *Vitis alba*, *Bryonia*, Chab. 120. WHITE BRYONY. Dale.

This Bryony has a large thick Root, frequently as big as a Man's Arm, growing very deep in the Earth, of a light Brown on the Outside, and White within, of a bitter unpleasant Taste. In the Spring it sends forth a great many rough and hairy slender Stalks, which have curl'd Tendrils at the Joints, which climb to a great Length upon the Hedges near which it grows. The Leaves are, in Shape, like Vine-leaves, whence it is call'd *Vitis alba*, the white Vine; they are rough and hairy. The Flowers grow several together, on a common long Foot-stalk, each of a single Leaf, cut into five Segments, of a whitish-green Colour; after which follow red small Berries, full of Seeds. It grows in Lanes, and by Hedge-sides, flowering in May, the Berries being ripe in September.

Paulus Aegineta, Lib. 7. C. 3. informs us, that the young Shoots of white Bryony are used as a Food grateful to the Stomach. But in this he himself has either been in an Error, since it only holds true of black Bryony, or the Hands thro' which his Works have pass'd, have made him say a thing which is absolutely false. Neither can I comprehend how white Bryony should generate Milk, &c. &c. with *Baubine*, we say, that it may accidentally produce this Effect by purging such Nurses as are valentidary, and in a bad State of Health; for all the Parts of the Plant are of an acrid exulcerating Quality; which *Meisner*, R. 111. L. 2. C. 25. seems to have had in his View, when he uses these Words: "Its young Shoots, when they first appear, are principally used with Aromatics, and correct the fetid and disagreeable Smell of the Breath, especially when that Misfortune proceeds from a Corruption of the Humours lodged in the Stomach." For, by the Addition of the Aromatics, the drastic purgative Quality of the Plant must, in some measure, be corrected and balanced. The same Author, for a Purge, prescribes from one Dram to two Drams of the Juice of its Root; and of itself, in Substance, from one Dram and an half to three Drams. Later Authors have observed, that not only the Roots, but also the young Shoots and Berries, are possess'd of a very drastic and powerful purgative Quality, and must consequently be proper for removing Obstructions. The Root alone is, at present, used for medicinal Purposes; and Authors, I believe, are sufficiently agreed, that it is intolerably acrimonious and nauseous, that it provokes Urine, purges violently, and vomits briskly. It is generally class'd among the phlegmagogue and hydragogue Medicines; and is, on account of the Violence with which it operates, call'd *Russicorum Purgatio*, the Purge of the common People. The Dose of the Root, reduced to Powder, is from two Scruples to one Dram: Half an Ounce of its Juice may be given; and three Drams of Infusions or Decoctions of it may be used. But to whatever internal Purposes it is used, *Tournefort* thinks it expedient to correct its strong and drastic Qualities, by the Addition of a proper Quantity of Cream of Tartar, or *Tartarus Tartarizatus*.

According to *Le Mort*, an excellent Purge is prepared of Bryony in the following manner:

Take of fresh Bryony, a sufficient Quantity; after having bruised it, and express'd the Juice, let it be well dried.

Then bruise it a second time; and to one Ounce of the dried and pulverized Root, add three Drops of the Oil of Cloves, and half a Dram of distil'd Vinegar: Mix all together; and lastly, dry the Whole, either over a very slow Fire, or by the Heat of the Sun. Thus will you have an excellent and efficacious Purge in Cachexies, and all Obstructions of the Uterus. The Dose is from five Grains to one Scruple. *Coll. Leyd.*

Baubine informs us, from *Jo. Stoffelius*, that if we cut the Bryony-root close by the Surface of the Earth, and excavate that Part of it which is left in the Ground, covering it over with that Part of the Root which was cut off, in order to hinder Dust and Earth from falling into the Cavity, we shall next Day, upon uncovering it, find it full of a certain milky Juice, which continues in it till the third Day; and that a Spoonful of this Juice purges a Man no less safely than speedily. *Ray* also, from *Dolæus*, informs us, that by taking from one to two or three Spoonfuls of this Juice every Morning, many dropical Patients have been cured; provided the Juice has been gather'd in the Spring of the Year, when the Moon is increasing. *Hoffman* acquaints us, that *Platerus* took the white Bryony-root before it germinated; and, after pulling off the Bark, and cutting it into Shreds, pass'd a Thread thro' it, and hung it up to dry, either by the Heat of the Sun, or that of the Fire; and that, when it was sufficiently dry, he infused it in generous Wine, and dried it a second time. This Method he repeated several times, and affirm'd, that, when thus prepared, it purged excellently, and without creating any Uneasiness. The same Author prepares Troches of white Bryony in this manner:

He reduces the Bryony, thus corrected, to a Powder; and, after sprinkling it with *Malmsey* Wine, in which Ginger has been infused, he forms it into small Cakes, which, when dry, he reduces to a Powder, and uses in Infusions: When thus prepared, it purges, according to that Author, in the same manner the Troches of Agaric do.

Now since this Root, when used internally, acts by its stimulating and resolvent Acrimony, 'tis obvious, that it may be exhibited with Success in Cases where heating Medicines are indicated, and when the Intention is to stimulate the Nerves strongly, and give a Concussion to the whole System. To this Quality it is also owing, that it is so much extol'd in Intermitting Fevers, in provoking the Menfes, curing those uterine Disorders to which young Women are subject, and in killing and dislodging Worms lodged in the Intestines; for, being possess'd of a highly drastic Virtue, it powerfully incides the tenacious Juices, and surprisngly opens and removes Obstructions. Thus *Ray* informs us, that the Bulk of a Nutmeg of the Conserve made of its Root, taken twice a Day, and persisted in for a long time, often proves the happy Means of removing and entirely curing Epilepsies, and hysterical Passions; and that the same good Effect is produced by continually putting a Piece of its Root into the Cup, out of which the Patient drinks. *Baubine*, from *Arnaldus de Villa Nova*, gives us the History of a certain Patient, who, in the Space of three Weeks time, was completely cured of an Epilepsy, only by purging himself with depurated Juice of Bryony,edulcorated with a little Sugar. *Matthioli*, in his Commentaries on *Dioscorides*, informs us, that he knew a certain Woman, who, for several Years, had been daily subject to hysterical Fits; and who was at last advised, by a common Herb-man, once a Week, when going to Bed, to drink White-wine, in which an Ounce of Bryony-root had been boil'd; by which Medicine, continued for a Year, her Disorder was entirely removed. *Forestus*, *Obs. Chir. L. 6. Obs. 22. Schol.* informs us, from *Avicenna*, that Patients render'd delirious by dangerous Wounds, are in a great measure restor'd, either by drinking Bryony-root for some Days, in some refrigerating and diluting Liquor, or using it in any proper Food, capable of obtunding and blunting its Taste. The Root, externally applied, has, in many Cases, given incontest'd Proofs of its resolvent Qualities. When newly bruised, and mix'd up with Salt and Vinegar, it resolves cold Tumors, and removes the discolour'd Marks arising from extravasated Blood, if applied to them. *Helmont* affirms, that in Contusions, where a black discolour'd Blood is lodged under the Skin, Bryony-root alone, shaved down and applied, will, in a few Hours, resolve the Blood into Water, and draw it thro' the Pores of the Skin. According to *Etmuller*, Bryony-root not only cures the Dropsy, when exhibited internally, but also evacuates the Waters collected in the Abdomen, when applied externally, by way of Cataplasin, to the Region of the Loins, either bruised by itself, or made up with the Dung of a Cow, the Pigeon's, or Goat's. It is also applied to oedematous Swellings of the Feet and Legs, a Hydrocele of the Scrotum, and other Disorders of a similar Nature, in which Cases it carries off the Serum, and consequently dissolves the Swellings. It is also properly applied to serophulous Swellings, whether exulcerated or otherwise; for which Intention,

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Let half a Pound of the Root, cut into small Shreds, be fried in a Pan till the Shreds are shrunk and shrivel'd up: Then let the Liquor, strain'd off, be reduced to the Consistence of an Ointment, with half a Pound of Resin of the Fir-tree, and five Ounces of Wax. Let this Ointment be applied to the strumous Swelling every Morning and Night, upon a Piece of Linen Cloth.

This Medicine either dissolves the *Strumæ*, or brings them to Suppuration, and heals the Ulcers, as *Zacutus Lusitanus* affirms from Experience. If the Root of the white Bryony is excavated in the Ground, and cover'd with some proper Covering, the Liquor collected in it proves an excellent Medicine for arthritic Pains, if applied immediately to the Parts affected. The Root itself also, fresh bruised, mix'd up with Linseed-oil, and applied warm, removes sciatic and arthritic Pains: This Medicine must be repeated till the morbid Matter is resolved and dissipated. It is also excellent for Contusions, and for dissolving grumous and coagulated Blood. The Leaves of Bryony also, if bruised, and applied to livid and discolour'd Spots in the Skin, powerfully discuss the grumous Blood. For this Reason, in Gangrenes, and other Tumors, *Tackius* made Trial of the Root fresh bruised, or cut down, either alone, or mix'd with Chervil, by way of Cataplasim. It is also thought good for curing wandering arthritic Pains, by Transplantation, as it is commonly call'd. The Method of doing this is to hang the Bryony-root for some time to the Member or Part affected, and to bury it, when taken away, in any Garden or fruitful Soil where it grows. In the last Place, when the Uterus is to be purged, white Bryony-root may either be used as an uterine Pessary, or by way of Fumigation. See *Etmuller, Lib. 1.*

According to *Bauhine*, the Root is by some highly esteem'd in arthritic Pains; and their Method of using it is to cut it down, and macerate it in Brandy, which they afterwards distil, and sleeping Linen Cloths in the Water, when warm'd, apply them to the Parts affected. *Dr. Hopper, in Eph. N. C. D. 1. 2. 4. App. p. 47.* informs us, that Warts, on any Part of the Body whatever, are safely and effectually destroy'd by Ashes of Bryony-root, mix'd with the Juice of the same.

It is not, on this Occasion, improper to inquire, whether, from a Knowledge of the component Parts of Bryony, we can account for its Effects, and ascertain the particular Form in which it may best answer the Intentions of a Physician, when prescrib'd for internal Purposes? *Tournefort* informs us, that its Leaves are insipid, contain a viscid Juice, and do not, in the least, tinge blue Paper with a reddish Colour; whereas it is considerably tinged by the Root: From which Circumstance, he says, we may reasonably conjecture, that the Acid of Sal Ammoniac, which, in this Plant, is superior to its other Principles, is free and disentangled in the Root, in consequence of which it is left at Liberty to act agreeably to its own Nature; whereas in the Leaves this Acid is sheath'd up in a larger Quantity of Sulphur; and that the Root, subjected to the Fire, yields a large Quantity of an acid Liquor, a great deal of fetid Oil, and a considerable Portion of a volatile concreted Salt. *Mr. Boulduc* affirms, that the Root consists of saline, without any Mixture of resinous Principles; that it acts more powerfully when taken in Substance, than in any other Form whatever; and that, for a Dose, one Dram of the dried Root is sufficient; whereas, when fresh gather'd, four Drams of it are requir'd, because it then abounds with a superfluous Moisture. But as it is to be dreaded, lest too violent Effects should be produced by the Bryony-root in Substance, he thinks it more safe and expedient to have recourse to Infusions, Decoctions, and Extracts of it. He also prefers Infusions to Decoctions of it; and approves more of infusing it in Wine than in Water. When the precise and only Intention is to discharge the Waters from the Abdomen, he maintains, that Extracts prepared from its Juice, are preferable to those obtain'd by Infusion or Decoction, *Hist. Ac. Roy. des Sci. A. 1712.* It is to be observed, that the Root, when fresh gather'd, is thought to act more powerfully, than when it is dried; for which Reason, according to *Pomet*, it is call'd, by the Country-people of France, *Nouveau enragé*. In *Lemery's Pharmacopœia*, the *Aqua Bryoniæ Composita* is directed to be prepared in the following manner:

Take of the Juice of Bryony-root, four Pounds; of the Juices of the Leaves of Rue and Mugwort, each two Pounds; of dried Savin-leaves, three Handfuls; of Peverfew, Catmint, and Pennyroyal, each two Handfuls; of sweet Basil, and Dittany of *Crete*, each one Handful and an half; fresh Orange-peel, four Ounces; Myrrh, two Ounces; Castor, one Ounce; and rich Canary Wine, twelve Pounds. Digest for four Days in a proper Vessel; then subject it to Distillation in *Balneo Mariæ*. About the Middle of the Distillation express and strain; and then, by continuing the Distillation, and inspissating the Tincture, make an Hysteric Extract.

B R Y

R E M A R K S.

The Bryony-root must be fresh gather'd, rasp'd down, and the Juice express'd. The Leaves of the Rue and Mugwort must be also fresh gather'd, and bruised in a Mortar, and the Juice express'd in the common way. The Savin-leaves must be dry. The Dittany of *Crete*, together with the other Leaves, must be bruised and mix'd with the Orange-peel, the Myrrh, and the Castor. When all together are put into a large Cucurbit, the Juices and Canary Wine must be pour'd upon them, and the Cucurbit must be close stopp'd, put in a warm Place, and the Ingredients allow'd to digest for four Days. Then distil in *Balneo Mariæ*; and when half of the Quantity is drawn over, express what remains in the Alembic, and distil the express'd Liquor as before, till there remain but little in the Still; and then evaporate the Humidity till it acquires a pretty solid Consistence. Thus you will have an Extract to be kept for Use. Mix the distil'd Waters together, and thus you will have the COMPOUND BRYONY-WATER, which must be kept in a well-stopp'd Bottle.

This Water is antihysterical, aperient, good for the Vapours, and proper to excite the Menstrues, resist Poison, fortify the Brain, corroborate the Nerves, and eliminate noxious Humours by Transpiration. Its Dose is from half an Ounce to three Ounces.

The Extract is also antihysterical, and proper to promote the Menstrues. *Lemery's Pharm. Univers.*

In the *London Dispensatory*, from which *Mr. Lemery* took the above-mention'd Recipe, Spirit of Wine is order'd for the Distillation. In the *Edinburgh Dispensatory* Spirit of Wine is also used for that Purpose, but the Castor is rejected. Instead of the Extract, *Tournefort* recommends an Infusion of the Root in Wine, which he orders to be inspissated. In the *Coll. 2. Leyd.* there is an Extract of Bryony prescrib'd, which, in the Opinion of *Mr. Le Mort*, tho' a Medicine of a low Price, is yet a Purgative of great Value and Efficacy. It is prepared in the following manner:

Take of dried Bryony, one Pound; of the Herb Fumitory, two Pounds; and of Sena-leaves, four Drams: Boil all together for two Hours, in a sufficient Quantity of Water; and let the express'd Liquor be reduced to the Consistence of Pills. The Dose is from half a Scruple to half a Dram.

The *Electuarium Diabryonias Democriti*, in *Mesue*, is said to be wonderfully efficacious in Epilepsies, Palsies, Vertiges, and other cold Disorders of the Brain, and Spinal Marrow, and of the Nerves which arise from them. It is prepared thus:

Take of Bryony-root, cleansed and triturated, five Pounds; of the Rob of Grapes, four Pounds; roasted Squills, and the Kernels of Pine-nuts, each half a Pound; Agaric, three Drams; Nutmegs, Cardamoms, Mace, and Ginger, each two Drams; Cloves, Long-pepper, and Storchas, each one Dram and a half; Seeds of Hartwort, Sal Gem, and the Trochisci Galliæ Moschatae, each one Dram; and of Spikenard, half a Dram: Mix up into an Electuary, according to Art. After it has stood six Weeks, the Dose is from two Drams to five or six; tho' *Lemery* orders an Ounce and a half.

As *Mr. Lemery* thinks the above Preparation very faulty in several respects, he proposes the following in its stead, under the Title of *Electuarium Diabryonias Emendatum*, which he prepares thus:

Take of the Juice of cleansed Bryony, fresh extracted, four Pounds; of the best Honey, two Pounds: Let them be boil'd to the Consistence of Honey; then add, of the Powder of Turbith, Hermodactyls, Jalap, Agaric, and Salt of Bryony, each six Drams; and of the *Facula Bryoniæ*, half an Ounce. Make up into an Electuary, according to Art. The Dose is from one Dram to one Ounce. *Lemery Pharm. Univers.*

By the above-quoted *Mesue* a Syrup is ascribed to the said *Democritus*, which is compounded of the Juice of Bryony, Aromatics, the Rob of Raisins, and Honey. This Syrup is said to be as efficacious as the former Electuary, if two Ounces of it are taken for a Dose.

In the *Dispensatorium Borussæ-Brandenburgicum*, there is a *Syrupus de Bryonia*, prepared of the Juice of Bryony-roots, with Honey and Sugar, which may be given to asthmatic and hysterical Patients; and in Cases where Animals are suspected to be lodged in the Stomach or Intestines. *Faber, in Abyssin. L. 6. C. 10.* prepares a Syrup of Bryony, from a Decoction of its new-pull'd Roots, inspissated, and Sugar; to which he afterwards adds the finest of the Salt, procured by drying the Root, and

and reducing it to white Ashes, allowing half an Ounce of the Salt for each Pound of the Syrup. He informs us, that this Medicine gently purges all ferous Humours, powerfully promotes the Menfes, and safely cures most of the Disorders to which young Women are subject, because it opens all Obstructions, and purifies the Blood. Half an Ounce of it, or in strong Constitution a whole Ounce, is exhibited for a Dose, in some proper Broth, early in the Morning, with an empty Stomach: A Regimen must at the same time be observed, as in other Cases.

An Ounce of the *Fæcula Bryoniæ*, or the Powder which subsides in the express'd Juice of its Root, is by many exhibited as a Medicine safer than the Root itself, or its Juice, and is expressly class'd among the Openers of the Uterus; but, as *Lindæus* in his *Pharmacop.* well observes, it is a very ineffectual Preparation, unless assisted with Chalybeats; since, according to *Etmüller*, it is a dead Calx, of no manner of Use nor Efficacy; besides, what is commonly sold is for the most part adulterated. The *Nectar Succosum* of *Cloffius*, which, in *Schröder's Phar.* is directed to be prepared of one Ounce of the express'd Juice of Bryony, mix'd with one Dram of the Oil of Vitriol, or Sulphur, is, in *Etmüller's* Opinion, a very safe and proper Purge, provided the Dose does not exceed one Dram.

But, that we may see how prone some People are to Fraud and Imposture, I shall here recount some Circumstances mention'd by *Morison*. "Mountebanks, says he, and some Botanists, form very strange Monsters of the Bryony-root; upon which, if bifurcated when taken from the Earth, as it frequently is, they with a Pen-knife form the genital Parts of a Boy; and endeavour, by a proper Fissure, to imitate those of a Woman, by *Laurentius* call'd the Sacred Cave. After they have taken these Measures, they bury the Root for some time in Sand, or rather in a sandy Soil, till the wounded or scissitious Parts have assumed a Skin; after which they confidently expose it to Sale, as the Male and Female Mandrakes. We daily observe, that many Roots, such as Carrots, and some others of the umbelliferous Kind, grow spontaneously bifurcated; and I boldly assert, that, if sufficient Art is used, they may be caused to grow in the Shape of other Parts of the human Body. Now, when the Bryony-root happens to be old, thick, and bifurcated, these trifling Forms may easily be obtain'd. But to complete the Farce, and render, as they think, the Imposture beyond the Hazard of a Discovery, these Wonder-working Botanists put the Seeds of Oats into the Wound made in the Bryony-root, which germinate in the Earth, and make an Effort to send forth Leaves; but wanting sufficient Nourishment, and being shut up from the Influence of the Air, they degenerate into small capillary Fibres. This Piece of Fraud may easily be detected by a skilful and quick-sighted Botanist. I myself remember to have seen such forced Productions carried about by strolling Mountebanks, both at *London* and at *Paris*, where their detestable Proprietors did not scruple to expose them to Sale for the genuine Roots of the Mandrake."

Dioscorides gives the following Account of the white Bryony.

The white Vine, otherwise call'd Bryony, *Ophiostaphylum*, *Chelidonium*, *Melothrum*, *Psilotrum*, *Archezoglossis*, *Agrostis*, and *Cedrostis*, in its Branches, Leaves, and Tendrils, resembles the cultivated Vine, only is more hairy in every Part. It twines about the neighbouring Shrubs, taking hold of them by its Tendrils. Its Fruit grows in Clusters, of a deep Yellow, and is used by the Tanners in taking off the Hairs from their Skins.

The tender Shoots of the first Budding, being boil'd and eaten, loosen the Belly, and provoke Urine. The Leaves, Fruit, and Root, are of an acrimonious Quality; and therefore proper, being made into a Cataplasm with Salt, for *Chironian*, gangrenous, and phagedenic Ulcers, and for putrid Ulcers in the Legs. The Root, with bitter Vetches, Earth of *Chios*, and Fenugreek, absterges and clears the Skin from Wrinkles, Sun-burns, Freckles, and black Marks. Boil'd in Oil till it be liquefy'd and dissolved, it works the same Effects. It takes off the livid Marks of Blows in the Face, and represses the *Proegia* of the Fingers. Applied in a Cataplasm with Wine, it dissolves Inflammations, and breaks Abscesses; and the Powder of it, in a Cataplasm, extracts Splinters of Bones: It is a proper Ingredient in septic or suppurative Medicines. A Dram thereof, drank every Day for a whole Year, is a Medicine for the Epilepsy; and is good for those who are subject to an Apoplexy or Vertigo. Two Drams of it, drank, are effectual against the Bite of the Viper, and kill the Child in the Womb. Sometimes it slightly disturbs the Reason. Being drank, it provokes Urine; and, apply'd as a Pessary, extracts both Birth and Afterbirth. It is made into an Eclegma with Honey, for the Use of those who are oppress'd with a Strangulation, or a Dyspnoea, and for Coughs, Pains in the Sides, Ruptures, and Convulsions. Half a Dram of it, taken in Vinegar, for thirty Days together, waxes the Spleen; and, applied by way of Cataplasm with a Fig to the Place, is effectual for the same Purpose. Its Decoction is proper for Infections, being a Purger of the Uterus, and expelling the dead Fœtus.

The Juice is expressed from the Root in the Spring-time, and is drank in Hydromel for the foremention'd Purposes, being a Phlegmagogue. The Fruit, us'd by way of Uction, or Cataplasm, is of Efficacy against the Psora and Lepa; and the Juice of the Fruit, supp'd with boil'd Wheat, causes Milk to flow in Plenty to the Breasts. *Dioscorides*, *Lib. 4. Cap. 184.*

Pliny, in the first Chapter of his twenty-third Book, ascribes the same Medicinal Virtues to white Bryony, with those now enumerated from *Dioscorides*.

There are several other Species of Bryony, such as,

1. The *Bryonia Zeylanica*, *foliis profunde laciniatis*, B. This Plant is frequently us'd in Dropsies, by the Inhabitants of Ceylon, an Island in the East-Indies, where it grows spontaneously on ruinous Walls, and in other uncultivated Places. *Beccler.*
2. The *Bryonia alba vulgaris procerior, folio cucurbitæ*. This agrees in Virtues with the other white Bryony.
3. The *Bryonia Indica* or *Americana*. The same with *MELCHOACANNA*, which see.
4. The *Bryonia Africana glabra, foliis in profundas lacinias divisis, flore luteo*, Olden. Smooth African Bryony, with deep-cut Leaves, and yellow Flowers.
5. The *Bryonia Americana, olivæ fructu rubro*, Plum. Cat. American Bryony, with red Olive-shap'd Fruit.
6. The *Bryonia Africana, fructu variegato*, Hort. Elth. African Bryony, with a variegated Fruit.
7. The *Bryonia Africana laciniata, tuberosa radice, floribus herbaceis*, Par. Bat. African cut-leav'd Bryony, with a tuberoso Root, and herbaceous Flowers.

BYRONIA NIGRA, Offic. Ger. 721. Emac. 871. Raii Hist. 1. 660. Mer. Pin. 16. *Bryonia sylvestris nigra*, Park. Theat. 178. *Bryonia lævis sive nigra racemosa*, C. B. Pin. 297. Hist. Oxon. 2. 5. *Bryonia nigra, sigillum Beatæ Mariæ officinarum*, Merc. Bot. 1. 24. Phyt. Brit. 17. *Vitis nigra quibusdam, seu Tamnus Plinii folio cyclamini*, J. B. 2. 147. *Vitis nigra sive Bryonia nigra quibusdam*, Chab. 120. *Tamnus racemosa, flore minore luteo-palescente*, Tourn. Inst. 103. Elem. Bot. 85. Boerh. Ind. A. 2. 62. Raii Synop. 4. 262. BLACK BRYONY. Dale.

The black Vine, which some call black Bryony, others the *Chironian* Vine, has Leaves like Ivy, but more nearly resembling those of the Smilax, only larger; their Stalks also are alike. This Plant, as well as the white Bryony, takes hold of the neighbouring Trees by its Tendrils. The Fruit grows in Clusters, and is green at first, but black when ripe. The Root is black on the Outside, but of the Colour of Box within. The Shoots of the first Budding are eaten as other Greens.

They provoke Urine and the Menfes, waste the Spleen, and are good for epileptical, vertiginous, and paralytical Persons. The Root has the same Virtues as that of the white Vine, and performs the same Effects, but in a less efficacious manner. A Cataplasm of the Leaves with Wine cures the gall'd and ulcerated Necks of Beasts of Burden, and is apply'd also to Luxations. *Dioscorides*, *Lib. 4. Cap. 185.*

The black Vine, properly call'd Bryony, is by some named *Chironia*, by others *Gynecanthe*, or *Apronia*; it is like the white Vine, except in Colour. The tender Shoots of it, eaten as Food, are preferr'd, by *Diocles*, before Asparagus, for provoking Urine, and diminishing the Spleen. It delights to grow among Shrubs and Reeds; the Root is black on the Outside, but of the Colour of Box within, and is more effectual in extracting Splinters of Bones, than the white Vine; but it has a peculiar Virtue of curing the gall'd Necks of Beasts of Burden. They say that if a Farm-house be mark'd with it, Hawks will not approach it, and so the Poultry will be kept in Security. The Plant, bound about the Ankle of Man or Beast, cures a Defluxion of Phlegm or Blood upon the Part. *Pliny*, *Lib. 3. Cap. 1.*

The Root of the black Bryony is less than that of the white, blackish on the Outside, whitish within, more solid, but slimy withal. The Branches grow as long as the white, climbing and ramping upon the Hedges in its Way, but without Tendrils or Claspers; they are smooth as well as the Leaves, which are of a dark-green Colour, and shining, in Shape of an Heart inverted, but longer pointed. The Flowers grow among the Leaves in long Clusters, much smaller than those of the white Bryony, of a greenish Colour, of one Leaf cut into six Parts; after which come red Berries, as in the former. It grows in the same Places with that, and flowers about the same time.

Some Authors affirm, that the Root of this Bryony is a strong Purge; but *Hoffman* could not find any purgative Quality in it, no more than Dr. *Lister*, tho' both try'd it several times. It provokes Urine, and cleanses the Reins from Gravel. A Cataplasm of the Root, with Vinegar and Cow-dung, helps the Gout. It is but rarely us'd. *Miller's Bot. Off.*

There are several Species of the black Bryony, or *Tamnus*; such as,

1. The *Tamnus racemosa, flore minore luteo-palescente* of *Tournefort*. The common black Bryony mention'd above.

It flowers in June, and its Root is only in Use. It incises and attenuates viscid Phlegm, especially in Disorders of the Thorax. *R. H. p. 661.* It provokes Urine and the Menfes, and

and discharges Sand from the Kidneys, if drank in a proper Liquor. *Libel.* Concerning its purgative Quality, I have as yet found nothing. *C. Hoffman.* *Gesner* affirms, that it is possess'd of an exulcerating Quality. It is possess'd of very violent Qualities, and is said to have something of a poisonous Nature in it; for which Reason it is very improperly us'd instead of the white Bryony. *Dale* from the above-quoted Authors.

2. The *Tamnus Cretica, trifido folio*, Tourn. Cor. Black Bryony of *Crate*, with a trifid Leaf.

3. The *Tamnus Americana tubifera, radice fungiformi*, Plum. American black Bryony, with a Root resembling a Mushroom.

4. The *Tamnus Americana racemosa minor*, Plum. Smaller branching American black Bryony.

5. The *Tamnus Americana racemosa major*, Plum. Greater branching American black Bryony.

6. The *Tamnus Americana, amplis foliis, subtus purpureus*, Plum. American black Bryony, with large Leaves, which are purple on their under Side.

7. The *Tamnus Americana, anguria folio*, Plum. American black Bryony, with a Water-melon-leaf.

BRYOPTERIS, or DRYOPTERIS, from βρύον, Moss, or δρύς, an Oak, and πτερίς, Fern. White Fern of the Oak, which grows on Moss of the Oak. *Blancard.* See DRYOPTERIS.

BRYTHION, a Malagma so call'd, the Composition of which is describ'd by *P. Aegineta, Lib. 7. Cap. 18.*

BRYTIA, βρύττα. The solid Parts of Grapes, remaining after the Must is expressed. *Galen, Lib. 2. de Alim. Fac. Cap. 9.*

BRYTON, βρύτων. A kind of Drink, made of Barley, which *Aristotle* calls πίνον (*Pinon*). They who get drunk with it, do not fall indifferently any way, as with other Liquors, but always supine, and on their Backs. *Hellanicus* says the *Bryton* is made of Rice; and it may be also made of Millet, as *Athenæus* informs us; who also says, that τὸ βρύτων, "the *Bryton*," is by some call'd κριθίνῃ οἶνῳ, "Barley Wine;" and tells us, in the same Place, that this κριθίνῃ οἶνῳ is call'd πίνον. But *Eustathius* says there is this Difference, that the πίνον is made of Barley, but the βρύτων also of Roots. *Goræus.*

BUBALUS, Offic. Schrod. 5. 272. *Gesn. de Quad. 122.* *Bubalus, Italis Bufalo*, Raii Synop. A. 72. *Buffelus*, Bellon. Obs. edit. Clus. 102. *Jons. de Quad. 38.* *Buffelus sive Bubalus vulgaris*, Aldrov. de Quad. Biful. 365. THE BUFFALO. *Dale.*

The Parts us'd in Medicine are the Horns, Hoofs, Tallow, and Dung, of which the Horns and Hoofs are good against Convulsions; and the other Parts are reckon'd to be endu'd with the same Virtues as those of the Ox.

Those who have wrote the History of Quadrupeds, deny this Animal to be the *Bubalus* of the Antients, but rather the wild *Indian Bos*, describ'd by *Aristotle* without a Name, and said to be found among the *Arachotæ*. But the learned *Ray* is strongly of Opinion, that the Name of the *Bubalus* came into *Italy* with the Animal to which it belong'd, and which, consequently, took its Name *Bubalus* from its native Country in *India* or *Asia*. *Bellonius, Observ. Lib. 2. Cap. 50.* takes the *African Bos* for the *Bubalus* of the Antients. *Idem ibidem.*

BUBO, βουβών. A Bubo.

A *Bubo*, *Phyma*, and *Phygethon*, are Affections of the Glands. A *Phyma* is an Inflammation of a Gland; a *Bubo* is the Inflammation of that Gland, hastening to a Suppuration; but the erysipelatous Inflammation of that same Gland is call'd a *Phygethon*. *Actuarii, Meth. Med. Lib. 2. Cap. 12.*

According to *Galen*, a *Bubo*, *Phyma*, and *Phygethon*, are Affections of the Glands; and a *Bubo* is an Inflammation, but a *Phyma* an Inflammation of a Gland tending to a Suppuration. But, according to others, all preternatural apostematous Tumors, in whatever Part they arise, are call'd *Phymata*. *Hippocrates* says, that they who are molested with *Phymata* in their urinary Passage, are freed by the Suppuration and Breaking of the same. Buboes which owe their Rise to Bruises, other Ulcers, or Pains, are not dangerous; but such as proceed from a Fever, as it usually happens in Pestilences, are of a very malignant Kind, whether they be near the Thigh, or in the Armpit, or about the Neck.

Buboes of the first or milder Sort are to be treated, like all other Inflammations, with Refrigerants and Astringents, and such Medicines as have a repelling Virtue; such are Applications of Sponges dipp'd in Oxyceras, or Wool moisten'd with Wine and Oleum Omphacinum (ελαιον ομφοκίβας), Oil of Roses, Oil of Quinces, Oil of Maltich, or Oil of Myrtle. After these, discutient Remedies are to be us'd; but, if the Body abounds with Humours, they are first to be evacuated. If there be nothing that requires Purgings, we are to apply ourselves to the Cure of the Ulcer from whence the Bubo was generated, which must be treated like other Ulcers. The Inflammation in the Glands must be mitigated by Applications of Wool moisten'd with some laxative kind of Oil, and the same must also be

VOL. I.

wrapp'd about the Part. The Tumor, when suppurated, is not hastily to be open'd, but we must try to resolve it by Medicines made into Cerates, particularly the Cerate nam'd *Diapyranon*, and that call'd *Botanicon*. If the Resolution does not succeed, we must endeavour to break it by the same means as are us'd for other Abscesses; and the Cure is the same. In Buboes proceeding from Fevers, or a mere Redundance of Humours, Repellents are to be avoided, lest we should repel the Matter upon the inward Parts; but we must begin with Discussants. If the Age and Strength of the Patient will permit, Blood is to be first taken from the Vein of the Cubit; after which we must use Fomentations of the Decoction of Chamomile, Dill, and such-like Herbs. The other Medicines are such as we have recommended as proper for the Parotides, and for Inflammations. After *Atticus*, call'd also *Bubonium*, from its Virtues in this Distemper, is said to cure it, not only if it be apply'd to the Sore, but worn as an Amulet. *P. Aegineta, Lib. 4. Cap. 22.*

There are some sorts of Tubercles, or Tumors, which never appear but in certain Places, which are in a manner appropriated to them. To these kinds belong what we call Buboes, which infect no Parts but the Groin and Armpits, and may be divided into the *mild* and the *malignant*; which Distinction, because it includes a different Method of Cure, requires a little Explication. A *mild* Bubo is so nam'd, first, when it rises, as it were, spontaneously; that is, when the Patient is in a State of Health, and wholly free from any contagious or pestilential Disease, in the same manner as a Furunculus, or Phlegmon, arises, especially on Infants; tho', for the most part, without Danger: Or, secondly, a Bubo is said to be *mild*, when it makes its Appearance at the End of some mild and favourable kind of Fever, the Violence of the Disease being, by the Strength of Nature, diverted that Way. A *malignant* Bubo is one which owes its Rise to some pestilential Contagion, or the Lues Venerea, and is therefore usually call'd a *pestilential* or *venereal* Bubo.

As to the Causes of a mild Bubo, I must remark, that this, as well as all other Inflammations proceeding from internal Causes, takes its Rise from the Stagnation of some glutinous and inspissated Blood, and, consequently, no way differs from other Inflammations, except its Place, which is in the Groin or Armpit, where much Fat, and many Glands, are situated.

A mild Bubo is not difficult to be distinguish'd, if we consider, that it is nothing but a Tumor, with an Inflammation, in the Parts above-mention'd, without any pestilential or venereal Contagion.

This kind of *Bubo* also is very seldom of dangerous or pernicious Consequence, being commonly resolv'd, or brought to a Suppuration. But this Resolution or Suppuration is sometimes brought about with Difficulty, especially in Persons of a bad Habit of Body, insomuch that these suppurated Tumors have sometimes ended in stubborn Fistulas. A Bubo in the Armpit is more easily brought to a Suppuration than one in the Groin; but neither of them is so difficult of Suppuration as the Parotides.

For Buboes which happen without any other Distemper, especially in Infants, the best way is often to administer frequently some purging Medicine, mix'd with Mercurius dulcis, that the glutinous and coagulated Blood may be drawn by Revulsion from the affected Part, and, at the same time, dissolv'd. Then other Medicines, which attenuate the Blood, are to be prescrib'd, as Decoctions of the Woods. If the Bubo be attended with a slight Fever, a Physician ought to be consult'd, for administering some antifebrile Medicines.

Where the Inflammation is but moderate, and, consequently, Resolution may be hop'd, it will be proper to apply digestive Plaisters, such as those of simple Diachylum, Sperma Ceti, Galbanum, Diapisonis, or De Ranis cum Mercurio; for these sorts of Tumors are often resolv'd by such external Applications.

If the Inflammation be violent, and the Pain intense, or if outward Digestives have no Effect, we are immediately to have recourse to Suppuration, by applying a Plaster of *Diachylum cum Gummi*, which is of excellent Service in this Case. If the Pain be very great and intolerable, dressive Cataplasms, applied warm to the affected Part, and often chang'd, are usually of very great Efficacy, not only in mitigating the Pain, but resolving the Tumor. Cataplasms for this Purpose may be compos'd of Crums of wheaten Bread, and Milk, boil'd to a Poultice, with an Addition of some Saffron; or of Meal, with Honey and fresh Butter, work'd to a Cataplasm by the Fire-side; to which may conveniently be added a small Quantity of *Venice Treacle*. This is to be apply'd hot, and often chang'd.

When, by these and such-like Medicines, we have reduc'd the stagnating Matter to Maturation, we are to make use of some Caustic, or of the Knife; but all imaginable Care is to be taken, that, in making an Incision, we do not injure the axillary Vessels under the Armpit, or the crural Vessels which lie under the Groin, and, by that means, excite a very dangerous Hemorrhage. The Abscess, when open'd, is to be treated

treated according to the general Method of treating Abscesses; tho' we ought to observe, that a Plaister of Diachylum is of extraordinary Use in this Case, as being extremely well adapted to the mollifying or resolving any Hardnesses or Callosities about the Edges of the Ulcer. *Heister.*

Gulielmus de Saliceto, an Author who wrote before the Venereal Disease was imported from *America*, mentions a Bubo *propter concubitum cum fœda muliere*. This Dr. *Freind* does not think was a Venereal Bubo; because all Buboes are not Venereal; and both these, and Tumors, and Abscesses in any of the genital Organs, may be contracted by conversing with Women, who, without having the Leprosy, or the Venereal Disease, are affected with Ulcers and Impostumations in those Parts.

Hippocrates takes Notice of a sort of Bubo arising on account of a Suppression of the Catamenia, and coming to Suppuration, in his *Treatise de Natura Pueri*. He calls it *ῥῆμα κατὰ τὸν βαβῶνα πύον γενόμενον*.

PESTILENTIAL BUBOES.

Pestilential Tumors are, by Professors of Surgery, generally divided into *Buboes*, and *Carbuncles*, or *Anthraxes*. Under the Name of *Bubo* they comprehend all inflammatory Tumors from a pestilential Cause, which arise not only under the Ears, in the Armpits, and in the Groin, but also in the Neck, on the Breast, Arms, Feet, or any other fleshy Part of the Body; the corrupt and pestiferous Matter being, by the Benefit of Nature, driven to the external Parts.

A pestilential Bubo may be known from other Tumors, by its appearing commonly just at the Time of a Pestilence, and its being accompanied with other pestilential Signs. For it is to be consider'd, that the best of our later Writers, who liv'd in the last pestilential Times, have assur'd us, that Persons seiz'd with the Pestilence, unless they died on the Spot, were every-where observ'd to have an Eruption of such Tumors. This Eruption happens sometimes quicker, sometimes slower; for some perceive them before they are sick, or have any Sense of the pestilential Poison; on others they appear not till the second, third, or fourth Day after their being seiz'd with the Contagion; but they are very rarely observ'd to come forth later. Sometimes these Buboes are accompany'd with a Carbuncle, or Anthrax, but are more frequently without them; whereas a Carbuncle very seldom happens without a Tumor.

It is an old Observation, and confirm'd in the last Pestilences, that most of those on whom Tumors appear'd, if they were not attended with very severe Symptoms, or an Accession of other Disorders, had the good Fortune to recover. Therefore our later Physicians have come into an Opinion, and not without Reason, that the principal Part of our Business in managing the Pestilence consists in promoting, by all imaginable means, the Growth of the Tumor, or Bubo, without the Benefit of which there is no Preservation of Life under the Pestilence; and that the Physician, who takes a right Method of curing the Bubo, at the same time cures the Pestilence. This being granted, digesting, dissolving, or repressing Medicines, Phlebotomy, or Purging, are so far from conducing to the Cure of the Pestilence, that, by retracting the Poison into the Blood, they destroy the Patient. The principal Business therefore of the Physician, or Surgeon, in this Case, is, to assist provident Nature, by promoting the Expulsion of the Tumors forming in the Body, and reducing them as soon as possible to a Suppuration or Maturity.

For the more ready Accomplishment of this End, it is much the safest way for the Patient, as soon as he perceives the Eruption of a Tumor, to confine himself to his House, and avoid the Air, and even to betake himself to his Bed; for, by this Method, he may be the more successfully defended from the external pestiferous Air, and the Buboes, by the right Administration both of internal and external Remedies, be the more easily expel'd, and brought to Suppuration.

As to external Management, it will be extremely proper to rub the swelling Part, with some Vehemence, both with the Hands, and with Linen Cloths; and, what is most effectual to the Purpose, after that to apply some emollient and maturating Remedies, to promote a speedy Eruption. A very good Remedy, in particular, is a Malagma compos'd of Ferment of Bread hot, alone, or mix'd with Salt and Mustard-seed bruis'd. By virtue of this Medicine the constricted Parts are wonderfully mollify'd and stimulated, till the pestiferous Matter, being attracted from the Blood toward the intumescent Parts, passes into a Suppuration. Of the same Virtue are Cataplasms, suppurative of other Tumors; especially one compos'd of Onions, roasted under the Ashes, and work'd with Treacle and Butter; or a Cataplasim prepar'd of the Inside of a wheaten or white Loaf, and well boil'd with Milk and Saffron. There are some Surgeons, who, to avoid exposing the Body to the Air, because of the frequent Change of Cataplasms, by which Transpiration may be disturb'd or hinder'd, are rather for applying emollient Plaisters, particularly a Plaister of Diachylum, simple or compound, instead of Cataplasms.

Barbette, a very noted Physician, in his Book of the Pestilence, prescribes the following, which seems a very good one.

Take Plaister of Diachylum and de Mucilagibus, each half a Pound; Mustard-seed pulveriz'd, four Ounces; Unguentum Basilicum, four Ounces: Mix them, and make them into a Plaister. This must be laid upon the swelling Part, which must first be well rubb'd, and renew'd every Day, or every other Day.

Hodges, a famous *English* Physician, in the Description of that terrible Plague which rag'd at *London* in the Year 1665. very much commends the following.

Take Plaister of Oxycroceum, three Ounces; Gum Galbanum strain'd, and Caranna, each one Ounce; common Pitch, two Drams. With Oil of Chamomile melt and make them into a Plaister according to Art, which must be applied in the same Method as the former.

Nor does that Plaister deserve to be despis'd, which consists of Honey, Meal, and Yolks of Eggs. The Remedies which most of the ancient Physicians us'd to accelerate Suppuration, as Vesicatories or Cantharides, and dry Cuppings, are almost wholly rejected by the Moderns, and those the most experienc'd Physicians in curing the Pestilence.

But what is much to be admir'd, and deserves a deeper Consideration, is, that the very celebrated *Beintema*, Physician to the Emperor, in his *Latin* Treatise of the last Pestilence, assures us that pestilential Buboes were often safely and successfully resolv'd and cur'd by the bare Imposition of hot Ashes. But tho' there be hardly any besides this Author, who advises the Resolution or Cure of Buboes in a Pestilence, it will not be amiss here to observe, that the pestiferous Venom was not, by the Resolution, repress'd and repelled into the Blood, but rather extract'd out of the Body, by means of the hot Ashes, and quite subdu'd.

To these external Medicines it will be proper to add the Use of internal Remedies, by whose Assistance the latent Venom may be expel'd by gentle Sweat; but immoderately heating and vehement Sudorifics have been always found to be noxious and dangerous, by Physicians of later Times; whereas sucking of small Liquors hot has been experienc'd to have a very good Effect, as being excellently accommodated to excite a gentle Sweat, and to temper the Blood. Medicines of this Nature, among others, are Potions of Tea, mix'd with a little Saffron, or of other alexipharmic Herbs, as Sage, Scordium, Rue, Millesolium, or Betony; Pilsan also, prepar'd with, or without, the Root of Scorzonera, and drank hot, in order to maintain a continual, but gentle Sweat. And as vehement Sudorifics, so cold Liquors are not a little dangerous; for they not only repress the Sweat, but, in a remarkable manner, restrain the Eruption and Growth of the Buboes, on whose kindly Promotion and Increase the Fate of the Patient so much depends. The Air of the Chamber in which the Patient lies, must be kept in a temperate State, neither too hot, nor too cold; the Bed also must be kept in the same Temperament, and as commodious as possible. If the Patient be weak and low, but without any remarkable Degree of Heat, it will not be improper to give thirty or forty Drops of Elixir Proprietatis, or the Mixture Simp'lex, the Bezoartic Tincture, Essence of Myrrh, Essence of Scordium, two or three times every Day, in some warm Liquor; or exhibit some good Bezoartic Powder. On the contrary, for those who are of a hot Complexion, or are molested with immoderate Heat, nothing is more proper than Nitre depurated, with Crabs-eyes, and testaceous Powders, or temperate Acids, such as the Juices of Citrons, Currants, and Pomegranates, or the Syrup and Water of Borage, Bugloss, or any other temperate and cooling Simple, often exhibited, instilling at the same time, if the Heat be vehement, some Drops of sweet Spirit of Vitriol.

The Remedies above prescrib'd are of sufficient Virtue to expel all the Poison of the Contagion from the inward and noble Parts, on the Authority of the most learned and experienc'd Physicians, who have written on the late Pestilence in *Poland*, *Prussia*, *Denmark*, *Austria*, *Hungary*, and *Ratibon*. These, then, are to be frequently repeated, till either the Tumors are digested and resolved, which, they tell us, sometimes happens without Suppuration, or, what more generally happens, are brought to Maturation. In some Cases the Tumor immediately inclines to Suppuration, sometimes it remains for whole Weeks, without being in the least mollify'd. When this happens, the Use of the above-prescrib'd Medicines is to be continu'd till the Tumor either breaks of itself, or is open'd with the Incision-knife; and the pestiferous Matter, being thereby prohibited from returning into the Blood, is evacuated, and the Wound thoroughly cleans'd.

The Abscess being open'd, we must immediately set about cleansing it, which being completed, the Wound must be heal'd by means of some vulnerary Balsam. For the Purpose of cleansing,

cleansing, we have a most noble Remedy, which is, the digestive Ointment, (Turpentine with the Yolk of an Egg) mix'd with a small Quantity of *Venice Treacle*, and Balsam of Sulphur with Oil of Turpentine. At every Dressing the Pus is to be gently absterged from the Ulcer, which is afterwards to be dress'd with the before-mention'd Ointment, but not tented, except the Orifice be too narrow; and a Plaister must be laid thereon, and the Place carefully bound up. Some of the best Plaisters in this Case are Diachylon, or what is compos'd of Meal and Honey, and these may very properly be apply'd till the Wound is heal'd.

As to the most convenient Time for making the Incision, Physicians are not agreed. Many Authors, especially among the Moderns, who have given us Precepts concerning the Pestilence, are utterly against opening a pestilential Bubo till it be perfectly ripe, and thoroughly soft. For, besides that these Buboes, as some have observ'd, almost constantly break of themselves, there is very great Danger, if we may believe these Authors, lest a too hasty and precipitate Incision of a Bubo should be succeeded by a Fistula of a bad kind, by an Immobility of the Limbs, and even by a Gangrene. Others, on the contrary, assert that the immediate Incision of a pestilential Bubo in the Beginning is not only safe, but the most likely means to preserve the Patients, and the surest, as well as speediest, way to free them from the Contagion.

Tho' some of the ancient Physicians have directed the utter Excision of pestilential Buboes, in order to extirpate the Venom, later Authors, for good Reasons, have been of a contrary Opinion. For such a Method of Cure is esteem'd not only too violent, but even very dangerous, especially in some Parts of the Body.

Thus also Cathartics and Emetics of all kinds, Phlebotomy, and internal healing Medicines, such as a Bezoartic Tincture, distilled Oils, with hot volatile antipestilential Spirits, *Venice Treacle*, and Mithridate, are almost unanimously rejected by later Physicians, tho' former Physicians laid a great Stress upon them. *Heister Chirurg.*

Of VENEREAL BUBOES.

Veneréal Buboes are painful, hard, renitent Tumors of the Conglobate or Lymphatic Glands, which are situated in the Groins, and which tend slowly to Suppuration, arising mediately or immediately from impure Veneréal Commerce. Therefore when this Species of the Veneréal Disease affects either Male or Female immediately after impure Embraces, or in a few Days after, some or more Glands, in either or both Groins, give some slight Pain in walking; and, upon feeling them, it may be perceived, that they are somewhat tumefy'd. The Tumor increases faster or slower, and grows hard, tense, and renitent; hence the Pain in the Part increases, a Sensation of preternatural Heat is perceiv'd, but the Skin still retains its natural Colour; the Patient finds more Difficulty in walking; at length a manifest Bubo appears, which are different in Figure, as orbicular, oblong, or round; sometimes of the Size of a Pigeon's or Hen's Egg, sometimes as large as a Man's Fist.

Veneréal Buboes admit of a threefold Distinction. 1. They may be distinguish'd by the Manner in which they make their Attack; for some proceed immediately and solely from impure Embraces, and constitute an *essential* Disease; others accompany a Gonorrhea which is suddenly suppress'd, or has but a small Discharge; or else attend chancreous Ulcers of the Penis, and form a *symptomatical* Disease; lastly, others arise spontaneously without any immediate previous Embraces, and constitute a Pathognomonic Sign of a latent Pox.

2. They may be distinguish'd by their Qualities; for some are attended with great Pain, Heat, and Pulsation, and are of the Phlegmon kind; others have but little Heat, Pain, Pulsation, and Hardness, but are rather soft, and retain the Marks of the Fingers after Pressure, and are of the œdematous kind; lastly, others being quite void of Pain, Heat, and Pulsation, are very hard, and are call'd *scirrhus*.

3. They may be distinguish'd by their manner of terminating, which is various; for some, either spontaneously, or by the Force of the Remedies apply'd to them, are dispersed by Degrees, and disappear; others come to Suppuration, and, after Evacuation of the Pus which was collected in them, at an Aperture made by a Caustic or Incision, form a Cicatrix; lastly, others, eluding the Force both of Ripeners and Emollients, persist in their Hardness and Renitency.

CAUSES of VENEREAL BUBOES.

The inguinal Glands cannot be tumefy'd after impure Embraces, and indurated into a Bubo, unless the Lymph, which is convey'd to them from the neighbouring Parts, as to a common Reservoir, and ought to flow thro' their Cells or Vesicles, in order to be carried off again, stagnate there, and be accumulated in them. But the Lymph cannot stagnate, and be accumulated in the inguinal Glands, unless it be thicker, and more viscid than usual. It follows, therefore, that the Lymph, which circulates thro' the inguinal Glands, is render'd too

thick and viscid by impure Embraces, and, by being accumulated in those Glands, produces Veneréal Buboes.

But nothing new happens to the Body from impure Embraces, except the simple Admission of the Veneréal Infection. That Infection, therefore, being admitted into the Body, and blended with the Lymph of the inguinal Glands, renders it too viscid and thick; for the producing of which Effect it is very well adapted, since it is of a falso-acid Nature, and is, for that Reason, effectual in coagulating sulphureous Humours, of which kind the Lymph is.

The infectious Matter, when once receiv'd, can be communicated to the inguinal Glands two ways; the one a long and intricate one, that is, by the Circulation of the Blood; the other much shorter and more expeditious, for Instance, by the Lymphatic Vessels, which are sent to the inguinal Glands. The first we reject, as not fit for resolving this Question, since that being once admitted, all the conglobate Glands in the Body are equally liable to be affected with the inguinal Glands, since they derive their Lymph from the same Mass of Blood: But this contradicts Experience. Therefore, in the present Case, we are of Opinion, that the later Way is only to be admitted.

But since there are three Species of Buboes, as we said above, consider'd with respect to the Manner in which they originally appear, the Diversity of the Manners in which they are contracted, deserves to be farther explain'd.

During the Act of Veneréal Commerce, the external Parts of the Pudendum Muliebre, together with the Vagina, are irrigated with the *Liquor Genitalis* of the Male. If this, therefore, should be corrupted, the infectious Matter will be imbib'd into the spongy Substance of the Parts, and mix'd with the Lymph which circulates in them; but this is sent by peculiar Lympheducts to the inguinal Glands. The infectious Matter, therefore, which is admitted, will be carried with it, at the same time, to those Glands.

In the same manner the Pudenda Masculina, and Pubes itself, will be affected, by the Communication with the other Sex. Therefore, if the Humours there are corrupted, the infectious Matter, penetrating the Pores of the Parts, will insinuate itself into the Lymph which flows thro' them, but this Lymph continually flows from thence to the inguinal Glands. Therefore the Veneréal Matter, which is mix'd with the Lymph, tends to the same Parts.

In a suppressed Gonorrhea, or a Gonorrhea where the Discharge is too small, the seminary Vesicles, Cowper's Glands, and Testes, in Men, but, in Women, the Prostates, Cowper's Glands, and the Botryform Glands of the Vagina, will be turgid with a corrupted Fluid. Some Particles, therefore, of the virulent Humour exhaling from thence will be taken up by the reflux Lymph, which flows from those Receptacles, or from the Parts which lie very near them in both Sexes, and will be carried with it to the inguinal Glands, where they will produce Buboes, unless a Passage be instantly open'd, by which the putrid Humour, which has been confin'd, may be discharged.

After the same manner the Lymph which returns from the Pudenda in either Sex, when they are affected with chancreous Ulcers, conveys with it several Particles of virulent Matter, from the ulcerated Parts, to the inguinal Glands, which by inspissating the Lymph, and obstructing the Glands in which it is contain'd, frequently occasion Buboes.

Lastly, in a latent Pox, when the Contents of the Testes, Prostates, Vesiculæ Seminales, and Cowper's Glands, in Men, but, in Women, of the Prostates, Botryform Glands, and Cowper's Glands, is infected with the Veneréal Taint, the Lymph of these Receptacles themselves, and of the Parts adjacent, will be so vitiated by the contagious Matter received from thence, that, being convey'd into the inguinal Glands, and infecting the Lymph collected there with the same Disorder, will produce Buboes, if the Infection has Virulency enough to produce such an Effect. But let the Bubo arise from whatever Cause, either from impure Embraces, a suppressed Gonorrhea, chancreous Ulcers, or, lastly, from a latent Pox, if it happens, that the Lymph in each Groin be equally infected with the Veneréal Poison, a Bubo will certainly arise in each Groin; but if there should be any Disparity in either Part, it will only happen on one Side.

This Disparity may arise from three Causes.

1. From the Disorder of the Part from whence the Poison is convey'd. So it appears, that the Glands of the Right or Left Side receive more Infection, as the Prostates, seminary Vesicles, Cowper's Glands, or the Testes, in the Man, but the Prostates, Cowper's Glands, or the Botryform Glands of the Vagina, in the Woman, shall be more turgid with virulent Humours on either Side, because the Lymph that returns from thence, and is convey'd into the Glands of the same Side, will be more virulent.

2. From the Disorder of the particular Part, to which the Poison is communicated. Thus it appears, that the inguinal Glands

Glands on either Side are more affected, as they are by their natural Conformation more full of Windings, more intricate, more cellular, in a Word, as they are less pervious, and therefore the more easily obstructed with inspissated Lymph.

3. From external Causes, or, as they term it, from Accidents. Thus it appears, all other Circumstances being alike, and the Glands of either Side equally infected with the Poison, that a Bubo may be raised on either Side by Pressure or Contusion of either Groin, by which the Congestion of the infected Lymph will be promoted; and this will sometimes happen by only lying on one Side, by which means the Regress of the Lymph is render'd slower, and more difficult, the Declivity of its Passage being diminished.

SYMPTOMS attending VENEREAL BUBOES.

1. The Lymph which is convey'd into the inguinal Glands, being inspissated by the Venereal Poison, will be inclin'd to stagnate there, from the Multiplicity of Windings and Cells which communicate with each other, which will be so many Obstacles to its Discharge. From hence, therefore, in the Beginning of the Disease, will arise a small Tumor of the inguinal Glands.

2. The Glands of the Groin cannot swell, without being upon the Stretch; nor can they suffer Distention without Pain, more or less, according to the Degree of the Tumor. Hence, therefore, upon the Increase of the Bubo, Pain will arise in the inguinal Glands.

3. It is impossible to walk, unless the Muscles of the Leg and Thigh pull them forward; but these Muscles cannot act without pressing upon the tumefied Glands of the Groin, and, by this Pressure, Pain will be excited. The Action of Walking, therefore, cannot be perform'd without raising Pain in the Venereal Bubo.

4. The Glands of the Groin, being once obstructed, will daily be more and more swell'd by the continual Accession of fresh Lymph, till, at last, the Force with which the Glands resist farther Dilatation, will be equal to the Force with which the fresh Lymph is impel'd. Therefore the Bubo will daily increase, grow harder, and, becoming prominent, tend to a Point, extending itself obliquely, according to the Situation of the inguinal Glands; more or less, however, in proportion to the Magnitude and Extensibility of these Glands, and the different Impulse of the Lymph which arrives at the Part.

5. Upon the Increase of the Bubo, the Blood-vessels which creep thro' the Middle of the Substance of the indurated Gland, must necessarily be compressed. But the Blood which flows thro' these compressed Vessels, must stagnate and be retarded in them, and, by that means, increase the Heat of the Part, till it has found itself a Passage. Hence, therefore, the Heat of the Bubo will increase.

6. But if the Tumor of the Gland increases exceedingly fast, and suddenly restrains the Course of the Blood; if the Pulsation of the Arteries is very strong, from the natural Make of the Body, or from a Fever coming on; lastly, if the Blood, being naturally hot, rarefies much; several small Drops of Blood will force their Way into the lateral Lymphatic Vessels, from whence a new Circulation of the Blood, deviating from its Course, being begun, the Bubo will increase in Heat, Pain, Pulsation, and Resistance; in a Word, will become a true Phlegmon.

7. But because the Blood-vessels of the Skin, which is free from any Disorder, are not at all, or very little, streighten'd, the Blood flows there as usual, and the Skin is not at all inflamed, and scarcely changes its Colour, but preserves that which is natural to it, or assumes one very little different from it.

8. If the Tumor increases slowly, if the Pulsation of the Arteries is slow and weak, if the Blood of the Patient is naturally aqueous, and inclin'd to Dissolution, the Blood will be driven languidly and slowly into the Vessels of the obstructed Gland, and in them it will flow still slower, and therefore will be less restrain'd; it will not stagnate, therefore, or will stagnate very little, in the neighbouring Vessels; and therefore will bring on but a moderate Degree of Heat and Pain, and a weak Pulsation of the Arteries; but it will, by Degrees, so dilate the Passages thro' which it passes, that the Streightness which was brought on upon the external Parts, will give very little Trouble; or it will open itself a new Passage into the lateral Vessels, leaving only its thinner Serous or Lymphatic Parts with which it abounds, in the Substance of the Humour. Hence therefore the Bubo in the inguinal Glands will be attended with moderate Heat, Pain, and Pulsation; and, being soft, at least externally, will easily receive and retain the Print of the Finger upon Pressure; in a Word, it will become cedematous.

9. Lastly, if the Blood is more thick, and inclin'd to Dryness, and secretes a thick and less fluid Lymph; if that Lymph is collected very slowly in the inguinal Glands, the Bubo which arises from thence will be scirrhus, that is, hard and renitent, because it is occasion'd by a Collection of very thick Lymph, indurated by Length of Time; it has neither Heat, Pain, or

Pulsation, as it is attended with no Stagnation of the Blood; because, as the Collection of Lymph in the Glands was form'd very slowly, the neighbouring Vessels were compressed in proportion; by which means the more remote Vessels, with which they communicated, were dilated, by Degrees, sufficiently to keep a free Passage open.

10. The Bubo of the Phlegmon kind may be easily and perfectly resolv'd; for the Blood, by whose Stagnation it is principally brought on, is easily restor'd to its natural Fluidity; but the Lymph which is retain'd in the obstructed Glands, preserves its Fluidity, and is strongly urged on to a circulatory Motion, by the intense Heat, and violent Vibrations, of the Arteries, which are proper to this kind of Bubo; and therefore it is the more easy to be resolv'd.

11. But if it does not resolve, it is on the same Account not difficult to be brought to Suppuration; for the Blood, by whose Stagnation it is principally supported, is naturally subject to Putrefaction; the Lymph, with which the Glands are stuffed, is easily disposed to Suppuration, by the violent Heat, and by the Pulsation of the Arteries with which it is agitated.

12. The cedematous Bubo is, indeed, easily resolv'd, as far as it relates to the thin Serum which fills the Vessels which surround the Tumor, because it is easily restor'd, by the Lymphatic Ducts, to its usual Course of Circulation: but it is imperfectly resolv'd, because the thick Lymph collected in the Cells of the Glands not being supplied with a Degree of Heat sufficient to render it fluid, and not being agitated by the Vibrations of the Arteries, which would urge it forward, both of which natural Assistances are wanting in this kind of Bubo, it is very difficult to be entirely resolv'd, on which Account a hard Nucleus always remains.

13. For the same Reason also, it is not easily brought to Suppuration, because the inspissated Lymph, both from its natural want of saline and active Parts, and from the Defect of an intense Heat, by which it might be render'd fluid, and of the Vibrations of the Arteries by which it might be divided, is very unfit to form a Suppuration.

14. Lastly, The scirrhus Bubo is never either resolv'd, or suppured, without great Difficulty, but generally grows daily harder; as well because the Lymph which stagnates in the Cells of the Glands, is thicker and more viscid, as because the preternatural Heat and Vibration of the Arteries are wanting, by which it might be brought to Resolution or Suppuration.

DIAGNOSTICS and PROGNOSTICS relative to VENEREAL BUBOES.

Venereal Buboës agree with simple, pestilential, scorbutic, and strumous Buboës, with respect to their Situation and Figure; but are distinguishable from them by peculiar Marks.

1. From simple and pestilential Buboës, because in these the Skin is red and inflamed, different from what it is in the Venereal Bubo. 2. From strumous and scorbutical, because from the known State of the Patient manifest Signs of strumous or scorbutical Disorders are collected. 3. But they are most certainly distinguished from all others by the Relation of the Patients, who confess, that they have been guilty of unclean or suspected Venery; or that they are affected with a Gonorrhea, or chancreous Ulcers.

Venereal Buboës bear no very small Resemblance to the Bubonocoele, or inguinal Hernia; yet we have known them sometimes confounded with it, not with that kind of Bubonocoele which is occasioned by the falling down of the Omentum, and is called Epiplocele, in which the Tumor is softer, but with that which is occasioned by the Intestine, and is called Enterocoele, in which there is greater Resistance, and is for that Reason more like a Bubo: but it cannot readily be mistaken for that Species of Enterocoele, in which the Intestine slips through the oblique Rings of the Epigastric Muscles, because the Place in which the Intestine falls down, and where the Tumor is raised, is at a Distance from the Inguinal Glands, and of Consequence from the Venereal Bubo; but it may be confounded with that Enterocoele, in which the Intestine falls into the Groin through the Foramen in the Peritonæum, through which the crural Vessels pass, which in their Situation differ not much from that of the Inguinal Glands, or Buboës.

But a Bubo may be easily distinguished from an Enterocoele of any kind, by the following Signs.

1. In the Enterocoele the Tumor is smooth upon the Superficies, and pretty nearly of a spherical Figure; the Superficies is pretty broad, but the Basis slender, equal to the Size of the Foramen, from whence the Intestine is fallen, and adheres to the Groin, as it were by a Stalk: the Bubo, on the other Hand, has an unequal Superficies, and is generally of an oblong Figure, and has a wide expanded Basis.

2. In the Enterocoele the Tumor easily yields upon Pressure, but, upon taking off the Finger, it instantly recovers itself: on the contrary, the Bubo resists Pressure, as the Bubo of the Phlegmon and scirrhus kind; or, if it yields to Pressure, it retains

tains the Print of the Body impressed upon it, as the œdematous and suppurated Bubo.

3. In the Enterocœle it appears by its giving Way to Pressure, and easily rising again, that either Flatulæ alone, or mixed with a liquid Matter, are the Contents of the Tumor: But in the Bubo no Flatulency is to be discover'd; or if by any obscure Fluctuation it shall be discover'd, that any Fluid is contained therein, it is but in a very small Quantity, and lies deep, and is only contained in the Middle of the Tumor, as it happens in the suppurated Bubo.

4. The Enterocœle brings on very bad Symptoms, as Fever, colical Pains, total Astriction of the Bowels, vomiting of the intestinal Feces upwards, and Iliac Passion, which never attend the Bubo. Besides, it is an exceedingly rare Thing, that the Use of impure or suspected Venery, by which the Bubo is produced, shall so aptly coincide with a Fall from on high, a Blow upon the Belly, or violent Motion, by which the Enterocœle is brought on, that it shall make it a Doubt of which kind the Tumor of the Groin is, and to which Cause it ought to be ascribed.

As soon as ever it appears, that there is a Venereal Bubo, it is easy enough to find out the Differences by which it is distinguish'd, by the Signs which we have laid down in its Description. For if the Tumor is intensely hot, painful, has a Pulsation in it, and resists Pressure, it is a Bubo of the Phlegmon kind; but if the Heat, Pain, Pulsation, and Resistance are in a moderate Degree, or if it is of a softer Nature, and retains the Print of the Finger impressed upon it, it is œdematous; lastly, if it is hard, makes great Resistance to Pressure, is quite free from Heat, Pain, or Pulsation; it is manifest, that it is a Bubo of the scirrhus kind.

Lastly, The Causes of Venereal Buboes are to be inquir'd into, either from the Relation of the Patient, or from the Knowledge of what has preceded; from whence it will appear, whether the Venereal Infection was communicated to the Inguinal Glands immediately by impure Coition, or by the Suppression of a Gonorrhea, or by chancrous Ulcers of the Penis, or from a latent Pox.

As to the Prognostics, the Venereal Bubo, if it is treated with Caution, is attended with no Danger; it is, however, a very troublesome Disorder, since it always requires a tedious Method of Cure, and oftentimes a Chirurgical Operation.

A Bubo may nevertheless be accounted dangerous on this Account, that it frequently brings on the Pox, unless the Poison that it receives is evacuated by Suppuration, or repeated Purging, and the Relicts, if any such should remain in the Blood, are diligently corrected by specific Remedies. But there is less Danger of the Pox to be apprehended from the Bubo which arises from impure Embraces, or from a suppressed Gonorrhea, or from Ulcers of the Penis, than from the Bubo which arises without any present manifest Cause; for the first arises from the Infection, which is just admitted, and which, as it has not been communicated to the Blood, may be discharg'd or corrected; but the latter depends upon the Infection which has been already conceal'd a long time in the Blood, and therefore has thoroughly tainted it.

The Bubo of the Phlegmon kind admits of a much more easy Cure, than that of the œdematous, or of the scirrhus kind; for as the first may be easily resolv'd, or brought to Suppuration, it in either way, by observing proper Cautions, quickly admits of a perfect Cure: but the latter frequently ends in a truly scirrhus Tumor, which for a considerable time eludes the Force of all Remedies, and at length frequently degenerates into a cancerous Nature.

CURE.

The Cure of the Venereal Bubo may be undertook in three Cases. 1. If it has come on without any manifest Cause. 2. If it is accompanied with a virulent Gonorrhea, or chancrous Ulcers of the Penis. 3. If it is unattended with any other Disorder, and arises immediately after impure Embraces.

In the first Case, when the Bubo is an Evidence of a latent Pox, it is proper without Delay to have recourse to Mercurial Unction, by which both the Bubo, and the Pox, by which it is occasion'd, may be perfectly cured. But, if the Patient cannot, or will not, make use of this salutary Advice, you may try other specific Remedies, according to the Methods laid down below, cautioning the Patient, as it is the Duty of every ingenious Physician, that by this Method the Disease will not have a complete, but a palliative Cure only.

In the second Case, the same Remedies in like manner are to be applied after the same Methods, but joined with others which may be proper for the Gonorrhea or Ulcers, in such a manner, that by the joint Force of the Remedies both Disorders may be perfectly cured at the same time.

Lastly, in the third Case, (which, as it is the most simple, may be a Rule for the rest) the utmost Endeavours should be used to destroy or discharge the Infection which is just admitted; and, if any Relict remain in the Blood, which may

renew or bring on the Pox, they should be diligently corrected.

Custom has established two Methods, by which all these Effects are equally produced; one by which Venereal Buboes are cured without Suppuration, or any Application of ripening Medicines, that is, only by the Use of Mercurials and Cathartics, till the Tumor, being dispersed, disappears by Degrees.

The other consists in curing Buboes by Suppuration, which is promoted by the Application of ripening Topics to the Part, and is so united with the internal Use of Mercurials, that the morbid Infection is by both destroyed.

The first Method requires no Operation to be perform'd, is shorter, free from Pain, and equally safe, and therefore, in the Judgment of many, seems preferable to the other. But at the same time it has this Inconvenience, that the Patient must be confin'd to his Chamber, during the whole Time of the Cure, if he would avoid the Danger he may incur from the Coldness of the Air. The later Method generally takes up more Time, is very tedious, and, as it requires the Performance of an Operation, is painful; but, as it generally permits the Patient to follow his usual Business, it is not yet quite neglected; but sometimes things come to that Height of themselves, when the Suppuration is once begun, that the Physician is obliged to follow this Method, though it be ever so much against his Will. Therefore, lest I should seem guilty of an Omission, I shall describe both Methods, but as briefly as I can.

I. Therefore first according to the former Method.

1. In the Beginning you should bleed, that the Glands may be unloaded, and the Inflammation of them prevented. The Blood should be drawn freely, if the Bubo is of the Phlegmon kind; but very sparingly, if it is œdematous, or scirrhus. Therefore the Practice of the old Authors is not to be regarded in this Case, who, led by Prejudice, which Experience proves to be false, were afraid of opening a Vein in curing a Bubo, as if the Infection would by this means be thrown into the Blood, and produce a Pox.

2. After this, the Patient should be purged, both that the Way may be prepared for the Use of other Remedies, and that Part of the infectious Matter may be carried off. Mild and cooling Purges should be prescribed, if the Bubo is attended with Inflammation. These may consist of the Pulp of *Cassia*, Decoction of Tamarinds, some purgative Salt, with a moderate Dose of *Mercurius Dulcis*, or *Calomel*. Proper Formulæ of this kind are these following.

Take fifteen Grains of well prepar'd *Mercurius Dulcis*, and of the Pulp of *Cassia* newly extracted, one Ounce; mix up into a Bolus, to be taken with an empty Stomach. Or,

Take of Tamarinds, one Ounce and a half; and of Vegetable Salt, one Dram. Boil them in a Pound and an half of common Water. Let the Liquor, when strain'd, be divided into two Doses, to be taken at three Hours Distance from each other, having first swallow'd a Bolus, consisting of fifteen Grains of *Mercurius Dulcis*, mix'd up with a proper Quantity of Conserve of Roses.

But stronger Purges should be order'd, if the Bubo should be œdematous or scirrhus. These may consist of Jalap, Diargyrium, large Doses of Calomel, adding also, if necessary, the *Trochisci albandal*. Proper Formulæ for answering this Intention are these following.

Take of Calomel, twenty Grains; of Jalap, and sulphurated Diargyrium, each twelve Grains. Make up into a Bolus, with a sufficient Quantity of Conserve of Roses. Or,

Take of Calomel, twenty Grains, or one Scruple; of sulphurated Diargyrium, ten Grains; of the *Trochisci albandal*, four Grains; and of the Oil of Anise, three Drops. Make up into a Bolus, with a sufficient Quantity of Conserve of Roses.

3. Mercurial Preparations, which have no purging Quality in them, are now to be prescribed, because they continue longer in the Blood, and have greater Efficacy in throwing out the Venereal Taint. Of this kind are,

The Mercurial Panacea sublim'd twelve times; the *Mercurius Violaceus*, or Antimonial Flowers of Mercury well wash'd; *Æthiops Mineral*, either triturated with Mercury and Sulphur, or prepar'd by Ignition; or, which is still better, the other *Æthiops Mineral*, triturated with *Peruvian Balam*, or that of *Canada*. The Dose of these is from fifteen to twenty or thirty Grains, which, being mixed with Conserve of Roses, may be taken twice every Day, Morning and Evening, or only once

every Day, or every other Day, as it shall have a quicker or slower Effect, persisting in this Method, till the Gums begin to swell, the Mouth grows hot, and a Ptyalism seems to be coming on:

4. But then, as soon as a Ptyalism is apprehended, you must immediately have recourse to Purging, after the manner we just now prescribed, that Part of the morbid Venereal Taint may be carried downwards, which otherwise would be discharged by the Salival Glands. That this may succeed the better, you must entirely abstain for some time from the Use of Mercurials, and rest till all is quiet again; if it shall seem proper, the Purging should be frequently repeated, that the Salivation may be the more powerfully restrain'd.

5. The Tendency towards a Salivation being quite remov'd, you must return to the Use of Mercurials after the same Method, and the Ptyalism is to be again provok'd, which, as soon as it appears, is to be again restrain'd, as before, by repeated Purging, and refraining from the Use of Mercurials; repeating this Course alternately till the Bubo, being dispersed, by Degrees disappears.

6. Emollient and resolving Topics conduce much to this End, as the *Emplastrum de Ranis*, either with or without Mercury; the *Emplastrum de Mucilaginis*, and the *Emplastrum de Spermate Ceti*; or, which are still more powerful, gentle Unctions of the Buboes and Groins, with mercurial Ointment, from one Scruple to half a Dram daily, or every other Day, or every third Day, as it shall seem requisite, or as the Danger of a Ptyalism is greater or less. For by this means the Lymph, which from its Thickness stagnates in the Inguinal Glands, is render'd more fluid, and is therefore more easily dispersed.

7. It has been the Practice for some time, to lay aside the internal Use of Mercurials, which load the Stomach, or vitiate the Blood, and in their room to order external Inunctions with the mercurial Ointment, from half a Dram to one Dram, upon the Nates and Inguina, sometimes every other Day, sometimes upon every third Day, according to the different Degree of the Disease, and the different Effects that are produced. But upon the first Signs of a Salivation coming on, you must not only abstain from farther Use of the Ointment, but the Patient must be instantly purged, that the Matter may be diverted downwards, as we have observ'd above. But the Hurry being over, the Frictions are to be repeated, and the Salivation taken down again upon its first Appearance, proceeding in this manner till the Bubo is perfectly dispersed.

8. There is no manner of Danger from this Method, that the Venereal Infection should be sent into the Blood with the resluent Lymph, and produce a Pox; because the Poison which is again mixed with the Blood, is corrected by the Power of the Mercury, and therefore has lost its Virulence; and because, although it should retain its Virulence, it does not remain long enough in the Blood to infect it, since it is carried off by purging Medicines, as fast as it is sent into the Blood.

9. During this whole Course of Cure, the Patient is to be confin'd to his Chamber; otherwise there would be Danger, lest the cutaneous and salivary Glands being suddenly contracted by the Coldness of the Air, and by that means Perspiration and Spitting being suppressed, the Thorax or Brain would be in Danger of being loaded.

10. A thin, diluting, moist Diet should be prescribed, of Puddings, Panadas, Creams of Rice, Jellies, Broths, and at most poached Eggs, forbidding, or very sparingly admitting of, the Use of Flesh, though it be ever so young or light, as Pullets or Chickens. Lastly, Care should be taken, that the Patient should abstain from Venery, Exercise, Passions of the Mind, and especially from Wine, and drink plentifully of Ptisan, that the Particles of Mercury may have the freer Admittance into the Blood, and have the greater Power to divide the insipidated Lymph.

II. Hitherto we have treated of the first Method; but if the Patient shall be better pleased with the other Method, as not being able to absent himself so long from Business as the former Method requires, or if the Physician shall find, as soon as he is called, that the Matter in the Bubo is tending to Suppuration, the later Method may be prosecuted in the following manner.

1. Universals should be premised, that is, Bleeding and Purging, with the same Cautions that we have already laid down.

2. Then, during the whole Course of Cure, mercurial Preparations should be order'd, which are free from any purging Faculty, in a smaller Dose, and at longer Intervals, than in the former Method, but in a sufficient Dose to destroy the Venereal Poison. But if a Ptyalism should be threaten'd by this Method, it should be taken down by Purging, as we advised before.

3. Topical Applications are at the same time to be made use of, by which the Matter of the Tumor may be soften'd, and brought to Suppuration. The following Cataplasms are very serviceable to this End.

Take two Ounces of Onions roasted under the Ashes, of black Soap, and Diachylon with the Gums, each an Ounce and a half; and of Basilicon, an Ounce: Beat all together in a Marble Mortar for a Cataplasm. Or,

Take of the Roots of Marsh mallows, Bryony, and white Lily, each an Ounce; cut them all down, and boil them. Add of the Leaves of Mallows and Brank-urline, each one Handful; boil all to a kind of Mucilage, and let them be bruised in a Mortar, and passed through a fine Sieve. To the Pulp thus passed through, add of old Leaven and Basilicon; each half an Ounce, or an Ounce; one white Onion roasted under the Ashes, and Oil of Lilies, a sufficient Quantity. Make up into a Cataplasm to be applied to the Part affected, and to be frequently renew'd.

4. In the room of Cataplasms you may order ripening Plaisters, which adhere to the Part, and are therefore more conveniently carried about. Of these the best are,

Simple Diachylum; Diachylum with the Gums, or that which is mix'd up with Galbanum, Gum Ammoniac, Sagapenum, and Opopanax, Diachylum diluted with the Oils of Galbanum and Ammoniac; Diachylum mix'd with an equal Quantity of black Soap, and common Pitch mix'd with an equal Quantity of Burgundy-pitch:

5. Though it should appear by certain Signs, that Matter is found in the Bubo, yet you are not too hastily to open this Bubo, but should wait for some time, till the greatest Part of the Bubo is suppured, that by this means the callous Parts of the Bubo being destroy'd, the Cure may be perfected with the greater Ease and Safety.

6. The suppured Bubo may be laid open two different ways, either with an Incision-knife, or by the potential Caustery: If the former way is made use of, the Incision should be deep; if the Bubo is small, one Wound will be sufficient; but if it is large, two Incisions should be made in the Form of a Cross, the Corners of which should be taken off with the Scissors. If you chuse the latter way, the Bubo, according to its Size should have a large Eschar made upon it with the Caustic, guarded by a proper Plaister, which if it does not penetrate as far as the Abscess, another Caustic should be laid on, or what remains should be cut through.

7. It is plain, that, in laying open a Bubo, the Use of the Caustic is preferable to Incision, both because the Caustic makes a larger Opening, by which means it is easier to inspect and dress the internal Parts of the Bubo; and more particularly because the Caustic, by its Cathartic Faculty, destroys the callous Bodies, and harder Parts of the Glands; by which means the Suppuration, Detersion, and Union of the Ulcer, are the more happily brought on.

8. The Pus being discharged, the Cavity of the Bubo is to be instantly filled up with dry Lint; which being removed the next Day, the Wound is to be dressed with common Digestive, prepared of Turpentine, the Yolk of an Egg, and Oil of St. John's-wort; to which, if the Foulness of the Ulcer shall require it, you may add some of the Unguentum Ægyptiacum, or Tincture of Myrrh and Aloes. Lastly, the Suppuration going on, the Ulcer may be cured with the Liniment of *Arcaus*.

9. As soon as ever the Inflammation shall be remov'd by the Suppuration, the Cavity of the Ulcer should be diligently examined; and if any Sinuses should be discovered, they must be laid open by Incision, if possible; or at least dilated in such a manner, that they may easily be deterged and healed. But if any callous Bodies remain, as is commonly the Case, they are to be consumed by Degrees with corrosive Medicines, as some Caustic Powder sprinkled upon a Pledget, or red Precipitate mix'd with Basilicon.

10. Lastly, the hard Basis of the Bubo should be softened and relaxed by the repeated Use of a mercurial Ointment; the Flesh with which the Ulcer is filled, should be made firm with the *Balsamum Viride Metensum*. If it is too luxuriant, it should be taken down by Dressings of dry Lint, or burnt Alum. At length the Tumor of the Glands being quite subsided, the divided Parts are to be united.

11. During this whole Course of Cure the Patient has fewer Restraints laid upon him, as to his manner of Living, than in the former Method, unless a Fever should come on at the time of Suppuration; in this Case it will be necessary to forbid the Patient the Use of Meat for some few Days. Nevertheless it will be proper to abstain from Wine, Venery, Exercise, Salt, or high-season'd Meats; and he should be cautious of exposing himself

himself to the Inclemency of the Air, especially as long as he takes mercurial Preparations.

From what has been said, it will be no hard Task to solve the following Problems :

1. Whether Venereal Buboes arise in any other Parts besides the Groin ?

It appears by Experience, that Venereal Buboes, or Tumors of the same Kind, sometimes appear in the Axillæ, the Throat, or upon the Sides of the lower Jaw, which are very like the Inguinal Buboes, come on in the same manner, take the same Course, and are cured by the same Remedies.

2. From what Cause should Venereal Buboes arise in those Parts ?

From a twofold Cause, as we just now said of the Inguinal Buboes : (1). From an old Venereal Infection, which in the Pox infects and inspissates the Lymph ; by which means there will be an easy Descent upon these Glands, whenever the external Cold, a Blow, Attrition, or strong Pressure, shall afford an Occasion. (2). From the Venereal Infection just admitted, which being absorbed in certain Parts, is carried with the reflux Lymph into the Glands, to which that Lymph is determined by the Laws of the Circulation. So Nurses who are infected by the Infants which they suckle, have most frequently Buboes either in the conglobate Glands, which are situated at the Basis of their Breasts, to which the Lymph first flows ; or else in the Axillary Glands, to which it is afterwards carried. So Children which receive the Infection from their Nurses, or the Lover who receives it from his Mistress, or the Mistress from her Lover, by kissing, are subject to Buboes in the Maxillary or Jugular Glands ; whence the Lymph is conveyed that returns from the Tongue, Cheeks, and Gums, and from the internal Parts of the Mouth, into which the first Particles of Infection penetrate, blended with Milk or Saliva.

3. How are these Buboes cured ?

After the same Method by which the Inguinal Buboes themselves are cured, since they agree with them in all Points. Therefore by Bleeding, Purging, and Mercurial Unctions, they are to be dispersed, if possible ; but if these Methods do not answer the desired End, they are to be brought to Suppuration, laid open, deterged, and cicatrized, according to Art, as we have advised above.

4. Do Venereal Buboes ever arise in the internal Lymphatic Glands ?

I never observed any Venereal Buboes of this Kind myself, nor do I remember to have read of any one that ever did observe them. But it is common enough for hard and scirrhous Tubercles to be found in the Lungs of pocky Persons ; and hard scirrhous Obstructions in the Mesenteric Glands, which if they do not go off in the same manner with Buboes, yet they acknowledge the same Cause.

5. Whence arises this Difference, since, on the other hand, in the Pox, the morbid Matter being equally mixed with the whole Mass of Blood, and in the same manner with all the Lymph, ought to produce the same Disorder in each of the Glands ?

Perhaps, from hence ; because as the internal Lymphatic Glands are situated in Places that abound constantly with a great deal of Heat, the native Fluidity of the Lymph is the more easily preserved in them. Thence a Stagnation of the Lymph must be an uncommon Case in them ; and if it should by chance happen, it will be less, make a slower Progress, and be more easily dispersed, than in the external Glands, which are subject to the Coldness of the Air. Besides, the internal Glands are guarded from Blows, Attrition, and Pressure, by which the Lymph is frequently invited to stagnate in the external Glands.

6. Lastly, whether Venereal Buboes are formed in Catamites and Pathics ; and if they are produced by this means, in what Parts is it usual for them to appear ?

As to the first Question, I never observed myself, nor did I ever meet with any one that ever observed Buboes upon Catamites, which could certainly be determined to arise from the Infection just contracted : For I do not imagine, that there are any Catamites who are so fond of playing the Pathic, that they never attempt to play the Agent ; but it is enough to have once played the Virile Part, to make it Matter of doubt whence the Bubo arises, if it shall follow this Action.

As to the later Question, I scarcely believe, that the Buboes which are formed in Catamites, if such do ever proceed from unnatural Venery, fall upon the Inguinal Glands, to which Parts the Lymph is never carried, or at least in exceeding small Quantities, from the Extremity of the Rectum, and the neighbouring Parts of the Anus ; but they will rather arise in those Lymphatic Glands, which are situated in the Cavity of the Abdomen, near the Division of the descending Aorta, to which Glands the Lymph of these Parts is carried : And this, perhaps, is the Occasion that Buboes of this Kind are never, or very rarely, produced ; because as these Glands are situated in the Cavity of the Abdomen, the Heat of the neighbouring Parts resists the Inspissation of the Lymph, as was just now observed.

But let not these Wretches congratulate themselves upon this Account, since, besides many very grievous Disorders, which are peculiar to their filthy Vice, they are intitled to Buboes of as bad, if not of a worse Kind, than Inguinal Buboes ; for it frequently happens in them, that the Lymph, which returns from the Extremity of the Rectum, and the Parts near the Anus, being inspissated by poisonous Particles, enlarges, distends, and swells the Lymphatic Glands, which are very small, but situated in great Numbers in the Fat about the Podex ; whence arises a kind of an annular Bubo, with which the Podex is incircled, attended with Heat, Redness, Hardness, and excessive Pain, especially at the Time of the Excretion of the Fæces. This is to be cured with the same Remedies, and treated after the same manner, with the Inguinal Venereal Buboes.

Thus far Mr. Astruc. But with respect to the Cure of Venereal Buboes, I must remark, that the Method of Cure by Suppuration is preferable on all Accounts to that by Resolution ; for the former is much less Trouble to the Patient, supposing the Cure by both Methods to be perfected ; and not by far so subject to be followed by other Venereal Symptoms, and those of the very worst Kind, which I have seldom fail'd to see consequent to the Resolution of a Venereal Bubo.

Heister, I am sensible, is of a different Opinion ; but I am inclined to believe, that the general Practice of those most concern'd in Venereal Cases will determine it against him. I believe, however, that it is possible to cure a Venereal Bubo by Resolution ; but with less Ease and Safety. But as Heister is an Author of Reputation, I shall specify the particular Method of Cure, which he recommends, as follows.

As to the Cure, there are many Physicians who will not admit of resolving this any more than a pestilential Bubo ; for by such a Method the Venereal Venom, contrary to the Intention of Nature, would return into the Veins, and, by infecting the Blood, excite a Lues Venerea. For the same Reason they forbid the Use of Cathartics and Phlebotomy ; and direct a Suppuration to be forwarded as much as possible. But, for my part, though with due Respect to these Authors, I am for a different Way of Proceeding ; for since the Method by Suppuration is not only very slow and tedious, but subjected to several other Inconveniencies, it is much the better and safer Way, as I have often found by Experience, to begin immediately with Purging, and other Mercurial Medicines, and Purifiers of the Blood, such as Decoctions of the Woods, and other things of the like Nature. By these means the Venom is expell'd by a far more expeditious Way than by the Method of Suppuration ; and the Tumors themselves may also be resolv'd without Fear or Danger of the Lues Venerea, or any other Distemper.

Whether, therefore, the Buboes be attended with a Gonorrhœa, or not, the most proper Way, certainly, is to purge the Patient with large and frequent Doses of Mercurius dulcis, as is usual in a Gonorrhœa ; for the internal Cure of a Gonorrhœa is usually the Cure of the Buboes, which can never be perfectly healed before the Venereal Poison be quite expelled from the Body. If there be a considerable Inflammation, it will be necessary, especially if the Patient be young, and of a sanguine Constitution, to take away some Blood, and afterwards administer some mercurial Cathartics, with Essences that purify the Blood, and Decoctions of the Woods. Outwardly, to the Tumor, must be apply'd digestive Plaisters, such as those of Melilot, de Ranis cum Mercurio, Diachylum, and such-like. At the same time the Patient must observe a very strict Regimen in his Diet, and Way of Living, confining himself principally to Liquids, prepared of Water, Barley, Oatmeal, and the like. His common Drink may be Ptisan, prepared of Barley, Liquorice, Anise, or Fennel, or a second Decoction of the Woods, or very small Beer. Wine, Brandy, and all Kinds of generous Liquors, are carefully to be avoided, as exasperating the Inflammation. By observing strictly these Rules, the Venereal Buboes, if not inveterate, may very commodiously be resolv'd without Fear or Danger.

When the Assistance of the Physician is call'd late, or the Buboes are too malignant to be cured by way of Dissolution, or it may be thought proper, for some other Reasons, to attempt the Cure by Suppuration, our chief Care, in order to the expelling and subduing the contagious Matter, is to be directed to the promoting and accelerating as much as possible the Suppuration. And besides suppurative Plaisters, it would not be amiss, either with Linen Cloths, or the Fingers anointed with Butter, or Oil, to rub these Buboes frequently and strongly, till they become red, and then immediately to apply a maturing Plaister ; for this is an admirable Means of accelerating the Suppuration. And these Kinds of Plaisters, that is, Diachylum cum Gummi, or a Plaister of Galbanum, and the like, are fittest to be apply'd while the Patient is yet able to walk without much Inconvenience, and may be taken off twice, thrice, or four times a Day, as Occasion requires, that the Bubo may be as often strongly rubb'd. Violent Exercises also, such as Dancing, Fighting, Fencing, and the like, are very proper Means to accelerate the Suppuration. But if the Patient, as it often happens, is no longer able to walk, because of the Pain,

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Pain, some maturing Cataplasm, of more Force and Efficacy than the Plaisters before-mentioned, may be apply'd. Cataplasms very convenient for this Purpose are those composed of Onions roasted under hot Ashes, or of Honey and Meal, or of Ferment; or, to mention no more, of Crums of white Bread boiled with Milk and Saffron: These Cataplasms must be applied every now-and-then after Friction.

With the Use of these external Applications, internal Remedies must also be administer'd. Thus the Patient is to take a Draught of eight, ten, or twelve Ounces, of a warm Decoction of the Woods, two or three times every Day, together with thirty or forty Drops of the Essence of those Woods, white Burnet, Fumitory, Germander, and the like, and some Grains of Mercurius dulcis, every Day. These Medicines, by greatly attenuating the Blood, and forcing it towards the Skin, and correcting the Venereal Poison, are very conducive to Dissolution, as well as Suppuration.

This Course must be follow'd till the Matter be either dissolved, or brought to Maturity. In this latter Case the Knife is to be used, and an Incision to be made; but with a great deal of Care and Circumspection, lest the larger Blood-vessels of the Groin or Armpits, which lie near, should be wounded, and a dangerous Hemorrhage thence occasioned. The best Precaution you can use in this Case, is to take the Head of the Bubo between your Fingers, and pull it upwards. As to the Time when the Incision is to be made, this one Observation is necessary, that it be not too soon nor too late, since both are dangerous. For as too much Haste procures Pains, dangerous Inflammations, and other Mischiefs, so too long a Delay, as *Hildanus* assures us, has almost constantly given Occasion to the Matter of the Bubo to mix again with the Blood; and by corrupting the whole Mass, to induce the *Lues Venerea*.

If the Patients be timorous, and dread the Knife, the Bubo must be open'd by some corroding Medicine, as the Practice is in Abscesses. When the Pus is evacuated, the Ulcer must be thoroughly cleansed by some Digestive, mixed with a little Venice-treacle, and red precipitate Mercury. After this a Plaister of *Diachylum cum Gummi* must be apply'd, in order to mollify the Margin of the Bubo; and when the Ulcer is sufficiently deterged, it is to be healed up with some vulnerary Balsam and Lint.

Sometimes these Ulcers are so stubborn, as not to be dry'd, nor conglutinated, by the Help of Medicines, but continually run with a plentiful Effusion of Sanies. In such a Case, and when neither the above prescribed Medicines, nor red Precipitate, nor burnt Alum, are of any Effect, there is no other Way, at least in my Opinion, but to cauterize the corrupted Part with a hot Iron, by which means the Lymphatic Vessels by searing are often effectually closed.

From the Premises, if I am not mistaken, it plainly appears, that it is always the best and most commodious Way, if it can be done, to discuss Venereal Buboës as soon as may be; or to attempt the Cure by Resolution, rather than Suppuration. But when the Blood is so far infected and corrupted by the Venereal Poison, as to shew manifest Symptoms of the *Lues Venerea*, another Way of Treatment, proper to that Disease, is required. *Heister*.

Of the Accidents which sometimes accompany a Venereal Bubo; and, first,

Of the FISTULOUS BUBO.

When a Bubo is once opened, if it is neglected, the Lips uniting, and the Orifice contracting, it degenerates into a Fistula, that is, into a sinuous and callous Ulcer; for both these are implied in the Nature of a Fistula. There are some Differences in this kind of Fistula.

1. With respect to the Aperture, which is sometimes wider, and therefore constantly gaping; sometimes narrower, and then it is sometimes covered with a Crust, or thin Skin.

2. With respect to the Sinuses which are concealed within, which are either wide or narrow, many or few, cutaneous or deep, strait or curve, &c.

3. With respect to the Fluid which is discharged, as it is either in great or small Quantities, purulent, sanious, or only simply ichorous.

4. Lastly, with respect to the callous Bodies which line the Sides of the Sinuses, and greatly differ in Size, Number, and Hardness.

As to the Causes, the Bubo, after it is laid open, may degenerate into a sordid and obstinate Ulcer, by the bad Disposition of the Blood, but more especially if the Venereal Poison should be latent in the Blood, by which the Pus will be render'd more acrimonious; but it will never degenerate into a Fistula, but by the gross Neglect or Ignorance of the Surgeon.

1. For Instance: If an unskilful Surgeon has made too small an Aperture in the suppurated Bubo, either with the Knife or Caustery; for by this means the Bottom of the Ulcer not being open to the View, nor easily reached by Medicine, it will be difficult to discover what Alterations are made within, or to

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apply proper Remedies; so the internal Parts of the Ulcer remain foul, whilst the Lips of it, which are more exposed to the Force of the Remedies, and are well deterged, hasten to a Union, by which means a Fistula is necessarily formed.

2. If he unwarily permits the Ulcer (though the Opening be sufficiently large) to tend too soon to a Cicatrix, before the ulcerated Gland be perfectly suppurated, or at least, whilst a small Portion of it at its lower Part, which occupies the Centre of the Ulcer, or several Membranes by which it adheres, and which are so many Pedunculi to it, are left unsuppurated. For we know very well by Experience, that no Ulcer can be ever perfectly cured, unless its Bottom be well deterged; nor can the Bottom be ever well deterged, as long as the least Portion of the ulcerated Gland, or of the Membranes by which it adheres, remain unsuppurated.

3. If from want of due Care he omits taking Notice of Pus being secretly discharged into the Bottom of the Ulcer from any neighbouring suppurated Gland, or from the Parts which lie between the neighbouring Glands; for unless this Fountain of Pus be speedily remov'd by dilating the Passage with the Knife or Caustery, a perfect Union of the Parts will be expected in vain; for though the Lips may seem to tend to a Cicatrix, yet the Ulcer will necessarily end in a Fistula.

As to the Symptoms; whichever of these Errors the Surgeon is guilty of, it will follow from thence,

1. That the Bottom of the ulcerated Bubo, if it is not deterged by proper Remedies; if it is lin'd with putrid Portions of the Gland, or its Membranes; if it is continually kept moist with a purulent Discharge; it will neither be cleaned, nor filled up with good Flesh, nor unite; but being continually eroded with a foul Exulceration, will form a larger or smaller Cavity.

2. But the Lips of the Ulcer, which, as they lie open to the Force of the Remedies which are applied, and are free from the other Inconveniencies which have been related, will be perfectly cleansed, deterged, and filled with new Flesh, which will by Degrees so contract the Mouth of the Ulcer, that there will remain a very small Opening into the Cavity, which will be wider or narrower, or covered with a Crust or thin Skin.

3. In the mean time the Pus, being confined in the Cavity of the Ulcer, and exercising its Force upon the adjacent Parts, by distending their Fibres, and inspissating the Lymph, will, in a short time, produce hard callous Bodies all round, which vary with respect to their Number, Size, and Hardness, in proportion to the different Qualities of the Pus, the different Firmness and Density of the eroded Fibres, or the different Degree of Inspissation of the circulating Lymph.

4. And if it is retained for any time, and is of an acrimonious Nature, the Erosion being by Degrees promoted, it will shortly form itself new Sinuses in several Places, many or few, wide or narrow, in proportion to the Degree of Acrimony which it possesses; strait or curve, deep or cutaneous, as the adjacent Parts afford more or less Resistance to the Force of the acrimonious Pus.

5. The Discharge from the Ulcer will be of a different Nature; ichorous, if pure Lymph flows from the eroded Lymphatic Ducts; but sanious, if Blood be discharged from the wounded Vessels, and mixed with the Lymph in the Cavity of the Fistula; purulent, if by Delay the Lymph and Blood acquiring the Form of Pus; lastly, in great or small Quantities, in proportion to the Flux of Humours to the Part.

As to the *Diagnosics*; the State of the Fistula into which an ulcerated Bubo has degenerated, lies open to the Eye; the Sinuses which are form'd, are discover'd by the Probe; callous Bodies are distinguished by the Touch; lastly, the Causes are easily found out, if you are acquainted with the Method in which the Bubo has been treated.

As to the *Prognostic*; a Fistula in the Groin, arising from a Bubo, is a very bad Disorder, and never to be made light of, since it generally supposes the Pox, by which it is brought on or supported; and it always requires a long, difficult, laborious, chirurgical Treatment. It is attended with Danger, (1.) if it has Sinuses which penetrate deep to the Crural Vessels, or their larger Ramifications. (2.) If some of the callous Bodies, which are concealed in it, are attended with acute Pains, and approach to the Nature of a Cancer.

As to the Method of Cure; if you are certain, or indeed if there are only strong Reasons for Presumption, that the Fistula, into which the ulcerated Bubo has degenerated, is accompanied with the Pox, by which it is aggravated, mercurial Unction should be advised, before the Cure of the Fistula be attempted. Nor are there any Hopes that the Effect shall ever perfectly cease, unless the Cause be first removed. Towards the End of the Ptyalism, when the Blood has now been well depurated, the Fistula is to be cured according to the Rules of Art, that by this means the Cure of the Pox and the Fistula may proceed equally, and at last be completed together.

But if it shall appear, that the Bubo has become fistulous, wholly by the Unskilfulness of the Surgeon, and that there is no Suspicion of a latent Pox; in this Case, if the Season of the Year will permit, you should lay aside all manner of Delay, and

and proceed to the Cure of the Fistula, after the following Method.

1. The Patient should be prepared for the Method of Cure, not only by universal Remedies, that is, Bleeding and Purging, which should be repeated according to the Strength and Constitution of the Patient, and the Nature of the Disease; but, besides, he should drink diluting and cooling Broths, made of Chicken or Veal, with proper Herbs and Roots; chalybeated Whey, Asses or Cows Milk; or, if the Season of the Year renders it proper, he should bathe in warm Water, or drink proper mineral Waters.

2. After this, having first examin'd the Number, Length, and Direction of the Sinuses which communicate with the Mouth of the Fistula, you must lay each of them open; and, if they are cutaneous, and not very callous, you may perform the Operation with the Knife or Scissors, which are to be introduc'd upon a Director, and the Lips should be carefully taken off, that the Bottom of the Sinuses may be expos'd to View; and then, according to Custom, it will be proper to fill up the Wound with dry Lint, in order to stop the Blood; which Dressing being taken off the next Day with a light Hand, the Ulcer should be treated for some time with a simple Digestive, and afterwards with the Liniment of *Arctius*.

3. But if the Sinuses should be very deep or callous, it will be more adviseable to make the Aperture with the Cautery, as we advis'd above. Therefore, laying a Plaster upon the Fistula, with an Opening in it, in such a manner that the principal Part of the Sinuses may be immediately under the Opening in the Plaster, apply some Pieces of the caustic Stone to the Part, sufficient to procure a deep Eschar. If they do not reach to the Sinuses, scarify the Eschar to the Quick, and apply another Caustic; or, which is the quicker Method, cut away the half-rotten Flesh with which the Sinuses are cover'd.

Alter this, promote the Falling off of the Eschar as soon as possible, by emollient and relaxing Applications; as Butter, the Yolk of an Egg, either alone, or beat up with Oil of St. John's-wort, Balsicon, or Turpentine, and laid upon Lint.

The other Eschar being fallen off, the Ulcer is to be treated with common Digestives, till the Decrease of the Pus indicates the Use of the Liniment of *Arctius*.

5. The Lips, and the neighbouring Parts, of the Ulcer being now relaxed by the Suppuration, it will be proper to examine all the Parts diligently, by pressing them with the Finger, by examining them with the Eye, and with the Probe, to find whether any Sinus, or considerable Callus, be conceal'd anywhere, which will be necessary to be remedied before the Ulcer can be united, and form a Cicatrix, lest the last Error be worse than the first, and another Fistula be brought on.

6. Therefore if any Sinus should be discover'd, but in a Part which will admit of Incision without any Danger, the Aperture should be made according to the whole Length of it, if possible; or, at least, the Mouth of it should be enlarg'd, by thrussing in an Escharotic, that the Bottom may lie sufficiently open to be freely deterged, and perfectly cured, by the Application of proper Medicines.

7. But if the Sinuses should reach so near to the Crural Vessels, or any of their larger Branches, that an Incision would not be free from Danger, Cathæretics alone must be us'd, and those of the milder Sort, which act moderately, and, by a gradual Erosion, dilate the Part in such a manner, that you may daily form a Judgment of their Effects; it will also be worth while diligently to take care, that the Cathæretic Medicines may be applied only to that Mouth of the Sinus which is at the greatest Distance from the Crural Vessels, and which may be expos'd therefore to their Force with the greater Safety.

8. If the harder Callosities should escape Suppuration, they are to be consum'd, by Degrees, with Cathæretics, as the Lapis Infernalis, or any other Caustic, or red Precipitate mix'd with some Ointment; and, to render them the more efficacious, it will be convenient to make light Scarifications upon the Surface of the callous Bodies with the Point of a Lancet.

9. The Sinuses being once agglutinated, the callous Bodies consumed and suppured, if the new Flesh, which springs up, is firm, thick, granulated, and rosy-colour'd, the Ulcer is to be brought to a Cicatrix, to which End epulotic Medicines are of Service, which, by drying the Superficies of the Ulcer, bring on a Cicatrix; of this kind are the Green-balsam, Pompholyx, burnt Lead, Cerufs, or Plaisters in which these are Ingredients; dry Lint, burnt Alum; or Agglutinants which guard the Rudiments of the Cicatrix, upon its first Formation, from being eroded by the Air; amongst which the best are Turpentine, dry'd and powder'd, Sarcocolla, Frankincense, and Myrrh.

10. Lastly, from the very Beginning of the Cure, a proper Regimen of Diet should be prescrib'd; it should be light, consisting of Pudding, Panadas, Cremors of Rice, or, at most, the Flesh of Chickens, when every thing is going on well; but very light, and only of the smallest Broths, if the Patient is afflicted with a Fever, if the Suppuration is in great Plenty, and very fetid, if the Lips of the Ulcer are inflam'd, if the Flesh is spongy, fungous, and luxuriant.

Of the SCIRRHUS BUBO.

It sometimes happens, that the Venereal Bubo, evading the Force of all Remedies, is neither dispers'd, nor brought to Suppuration, but entirely, or almost entirely, by Degrees, becomes thicken'd and indurated, and turn'd into a hard Scirrhus, which chiefly happens to the œdematous and scirrhus Bubo.

Scirrhuses, form'd in this Manner, differ,

1. With respect to their Figure and Size, in which there is great Difference.

2. With respect to the Number and Situation of the Glands which they possess; for some occupy only one Gland, and are call'd *Conglobate*; others occupy more, and are dispos'd either in Clusters, or after the manner of Links in a Chain, and are said to be *congested* either *racematim* or *catenatim*.

3. With respect to their State of Mobility, as some adhere loosely to the subjacent Parts, being moveable either to one Side or the other; whilst others adhere so immediately to the Part beneath them, that they can by no means be brought to vary their Situation.

4. Lastly, with respect to their Sensation; as some are without Pain, and truly scirrhus, whilst others produce an obtuse Pain, and approach near to the Nature of a Cancer.

As to the Causes, a Bubo is converted into a Scirrhus, when the Lymph, stagnating in the Cells or Vesicles of the Inguinal Glands, is more than ordinarily inspissated; by which means the Parts being stuffed up, and, by Degrees, brought to a more intimate Contact, it acquires, as it were, a cheefy Hardness. But the Lymph is thicken'd in this manner by several Causes.

1. By its natural vitiated Thickness, by which means, upon the Accession of the Venereal Poison, it is inspissated, *cæteris paribus*, more than it would be otherwise.

2. By the too great Quantity or Energy of the Venereal Poison which is receiv'd; whence it happens, that the Lymph, into which it is admitted, is, *cæteris paribus*, so much the more coagulated.

3. By either of the foregoing Causes concurring with the other; whence it happens, that the Lymph, being naturally too thick, meeting with too great a Quantity, or too virulent a Portion of the Infection, is violently coagulated.

4. By the preposterous Use of topical Repellents, such as are frequently applied upon the first Appearance of the Bubo, but very unadvisedly, since, by this means, the Thickness of the Lymph being increas'd, the Bubo becomes scirrhus, which might otherwise have dispers'd of itself.

5. By the Abuse of topical dispersing or ripening Applications, which, if they are unequal to the Office of rendering the Lymph fluid, increase its Thickness, inasmuch as they dissipate the thinner and more fluid Parts of it.

6. Lastly, by the Abuse of stimulating topical Applications. Of this sort are the ripening Cataplasms, with which bruised Mustard-seed is mix'd, which, by their Irritation, solicit the glandular Texture to frequent systaltic Constrictions; which is useful enough, if the confin'd Matter is fit to be dispers'd; but very hurtful, if it is of a hard Nature; since the finer and thinner Parts being forcibly thrown out, the thick Part which remains will form still a harder Mass.

As to the Symptoms, it appears, that according to the different Nature, Disposition, and Infection of the Lymph in the different Glands of the Groin, or according to the different Tension, Texture, and Permeability of those different Glands, sometimes one Gland only, of a different Size or Figure, is affected; whence,

1. A conglobate Bubo, and so a Scirrhus, different in Figure and Size, is produc'd; sometimes more together dispos'd in Clusters or Links, whence a Bubo, and so a Scirrhus *congested racematim* or *catenatim*.

2. According to the different Situation of the obstructed Gland, whether it be more or less deep, or according to the different Length, and Degree of Softness, of the tendinous Fibres or Membranes, by which the Gland adheres to the neighbouring Parts, a Bubo, and so a Scirrhus, is produc'd, sometimes moveable, sometimes, on the other hand, fix'd and ty'd down to the subjacent Part.

3. As the Lymph which stagnates in the Gland, is either quiet without Motion, or, from any Cause, is rarefy'd and expanded, the containing Membranes of the Glands will sometimes remain unmov'd, whence the Tumor will be without Pain, and truly scirrhus; sometimes they will be distended painfully, whence the Tumor begins to have an obscure Pain, and so to degenerate into a Cancer.

Lastly, in the former Case, where the Blood and Lymph have either dilated their Vessels by Degrees, or made themselves new Passages into the collateral Vessels, since, by the Matter of the Scirrhus being unmov'd, no new Pressure of the Vessel is brought on, nothing hence will arise new, with relation to the Colour or Heat of the Part; but, in the latter Case, things fall out differently, as will hereafter appear.

As to the Diagnostics, the Presence of the Inguinal Scirrhus, and the Differences into which it is distinguish'd, are sufficiently evident to the Sight and Touch; the Causes by which it was brought on, may be collected from the foregoing Ætiology.

As to the Prognostics; the Prognostic is always bad, since it is no easy thing to disperse or suppurate a Bubo, which is degenerated into a Scirrhus.

But it is worst of all, if it begins to be painful; since by that it is manifest, that, by Degrees, it is becoming cancerous.

As to the Method of Cure, it is exceeding difficult, as we observ'd before, to disperse or suppurate a scirrhus Bubo. Some advise dry Cupping upon the Part, to be daily repeated for a Quarter of an Hour at a time, that, by the Flux of Blood to the Part, the Matter of the Scirrhus may be heated, and, by that means, yield more readily to the Force of topical Discutients or Ripeners. But Experience has taught us, that this Method is almost always fruitless, and frequently even dangerous; since the Scirrhus, being heated by the Conflux of Blood to the Part, at length becomes frequently cancerous.

Others advise the scirrhus Gland to be consum'd, by Degrees, with Cathartics, if it refuses to yield to the Force of Discutients and Ripeners; or making an Incision into the Skin, to extirpate it with the Knife. But I should never advise the undertaking of Operations of this kind, which are tedious; difficult, and full of Danger, as long as the Scirrhus is without Pain, and brings on no Inconvenience: I would have this more particularly understood of Cathartics, since, by the preposterous Use of them, a Scirrhus is frequently converted into a Cancer.

Therefore it is better to have recourse to Mercurial Uñction; from which you may expect a happier Event. For, as the Parts of the Mercury, which are convey'd into the Blood by this means, not only very powerfully attenuate and divide the stagnating Lymph, but correct also the Particles of the Venereal Infection which coagulate the Lymph, they are the most efficacious Remedies that can be made use of to disperse gradually the scirrhus Bubo, since it is produced by the too great Viscidity of the Lymph, and the Inspissation of the Venereal Poison.

But two things are diligently to be observ'd in the Administration of the Mercurial Uñction.

1. That the Patient be duly prepared with the Use of diluting and relaxing Remedies, as well Universals as Particulars; Universals to liquify the Blood and Lymph, that they may yield with the greater Ease to the Particles of Mercury; Particulars, or Topics, to soften and relax the Texture of the Bubo, that the Lymph may have a more free Passage thro' it.

The first Intention is answer'd by warm Baths of River-water, cooling Broths, or Apozems, chalybeated Whey, Asses Milk, acidulated or chalybeate Mineral Waters; the latter by Cataplasms of the Crums of Bread, or of the Pulps of emollient Roots and Herbs, or by the Mucilage-plaister, or that of Sperma Ceti, the Use of which must be long persisted in.

2. That the Mercurial Uñction be us'd in small Quantities at each Friction; that the Frictions be perform'd at long Intervals, in order to permit the Mercury, which is mix'd with the Blood, to be retain'd in it for a long time, to the end that the Particles of Mercury circulating for a considerable time with the Blood, may the more forcibly divide the Lymph which stagnates in the Inguinal Glands, and so procure a perfect Resolution of the scirrhus Bubo.

By this Method, it is certain that the Inguinal Scirrhi, which succeed the Bubo, are, at least, so much lessen'd, if they are not perfectly dissolv'd, (which is rarely the Case) that the remaining Tumor is scarcely equal to the Size of an Almond or Hazel-nut. But I would by no means promise this as the certain and undoubted Effect of it, since I have known scirrhus Buboes so stubborn sometimes, that they have obstinately remain'd, notwithstanding the utmost Caution has been us'd in administering the Mercurial Uñction. If this should be the Case, and the Bubo has not yet acquir'd a stony Hardness, nor is inclin'd to turn cancerous, it will be proper to visit the warm Mineral Springs, and frequently to pump those Waters upon the Part, covering it afterwards with the Slime that remains at the Bottom of those Waters; by which means the coagulated Lymph may, by Degrees, be render'd fluid, and dispers'd.

But here also some Caution is necessary; for if the Bubo begins, by this means, to rarefy, grow hot, and painful, the Patient should instantly leave off the Use of these Waters, lest the Scirrhus should degenerate into a Cancer. In this Case, all Remedies being laid aside, the Whole is to be left to the Strength of Nature, advising a proper Regimen to be observed in Diet, and applying a Plaister to the Tumor, compos'd of equal Parts of the *Emplastrum Diabotani*, and *de Mucilaginis*.

Of a CANCEROUS BUBO.

The scirrhus Bubo, whilst it is becoming cancerous,

1. Grows hot, has an obscure Pain upon Pressure, swells, and grows very hard, sometimes shoots, but seldom; and then it is call'd a beginning Cancer.

2. Then all the Symptoms increase, the shooting Pains are

more frequent and acute, it changes its Figure, and rises to an Apex, which is cover'd by a tense, smooth, shining, reddish Skin; and now it is call'd a confirm'd, but occult, Cancer.

3. Lastly, the Skin dividing upon the Apex, it forms an Ulcer, from whence Blood, Ichor, and Sanies, are discharg'd Drop by Drop; the Ulcer spreads slowly, the cancerous Bodies are expanded and enlarged, the Lips of the Ulcer turn back, fungous Flesh arises, Ichor, Blood, and Sanies, are discharged plentifully, a tearing, shooting, burning Pain comes on in a violent manner, the Parts which are situated near the Tumor grow livid; in a Word, it is now a confirm'd ulcerated Cancer.

But, as was said before of the Scirrhus, the Cancer differs with relation to its being fix'd, or moveable; for sometimes it is moveable, and sometimes it firmly adheres to the subjacent Parts.

The whole Ætiology of the Cancer depends upon one Principle, which has been hitherto unregarded, however true; which is, That the Lymph, stagnating in the scirrhus Body, is rarefiable by Heat; and, being once heated, expands itself with so much the greater Force, as it is increased in Thickness and Inspissation. This is abundantly demonstrated from hence, that a scirrhus Tumor, when it begins to degenerate into a Cancer, swells without any Suppuration; that, upon the Increase of the Swelling, Part of the Scirrhus forms an Apex; lastly, that the Skin being once broke, the cancerous Matter which is conceal'd within, rising up, and, as it were, pouring out as soon as Room is allow'd for its Expansion, by Degrees enlarges the Ulcer, and, as it spreads more and more, turns out the Lips of the Ulcer all round.

From hence it follows, that the preternatural Heat which the Matter, confin'd in the scirrhus Body, conceives, is the proximate Cause by which the Scirrhus is converted into a Cancer. But it appears, that this kind of Heat is conceived by the scirrhus Matters;

1. Whenever the Blood which flows near the Part is render'd too hot, by an acute or hectic Fever; by an acrimonious, salt, piperine Diet; by the immoderate Use of Wine, or spirituous Liquors; by immoderate Venery, Exercise, or Watching.

2. Whenever the Blood, tho' it may not be too hot, is forc'd to stagnate in the neighbouring Parts of the Scirrhus, from the too great Plenty of it, as it happens by too frequent Application of Cupping Glasses, or by a Contusion upon the Scirrhus.

3. Lastly, whenever the scirrhus Tumor is heated beyond measure, by the Application of Topics, which are actually or potentially hot, or by the imprudent Use of Escharotics.

Therefore all these are to be reckon'd as remote or precatary Causes of a Cancer.

As to the Symptoms;

1. It appears from what has been said, that a Scirrhus begins to be chang'd into a Cancer, because the contain'd Matter is heated and rarefied. Therefore a Scirrhus, degenerating into a Cancer, ought to increase a little in Heat, Tumor, and Resistance.

2. The Matter in the degenerating Scirrhus enlarges: The containing Cells, therefore, and external Coverings of the scirrhus Gland, are, by this means, strongly distended, and produce Pain.

3. The same Matter still rarefying more, and with greater Force, from any external Cause, presses strongly upon the neighbouring Vessels. The Arteries, by this means, becoming more turgid with Blood which is confin'd in them, will be provok'd to more frequent Vibrations, and shake the neighbouring Parts with the greater Vehemence, from whence will proceed a shooting Pain.

4. In the same Proportion that the Matter of the degenerating Scirrhus increases in Heat and Rarefaction, the Pain, Tumor, Resistance, and Shooting, will increase daily.

5. As the scirrhus Matter is not perfectly homogeneous and uniform, but more or less prepar'd for Expansion in different Cells of the Tumor; and as the Cells in which it is contain'd do not equally resist its expansive Force, so one or other Part of the degenerated Scirrhus, from one or both of these Causes, will enlarge itself beyond the rest, and, changing its Figure, by Degrees protuberate into an Apex.

6. As one or other Part of the Tumor is more enlarg'd into an Apex, the Skin which covers it will be more distended; the Top of the Apex, therefore, will be cover'd with a tense, smooth, shining, thin Skin, of a darkish-red Colour, because the Blood meets with Difficulty in passing thro' its Vessels, which are too much distended.

7. The Skin, being render'd thin by violent Straining, is, at last, divided by the contain'd Matter. Hence, at first, proceeds a small superficial Ulcer, which, by the Continuance of the same Causes, by Degrees increases, and is dilated.

8. Blood flows from the ulcerated Cancer, if any of the larger Blood-vessels are divided; Lymph or Ichor, if the Blood-vessels remain unhurt, and only the Lymphatics are injured; purulent Matter, if the fungous Flesh, with which the Ulcer

is cover'd, putrefies; lastly, Sanies, or Lymph, mixed with Blood or Matter, if any of the foregoing Circumstances concur at the same time: But never true, unmix'd, laudable Pus, since the scirrhus Matter, as well from its lymphatic Nature, as from its too great Inspissation, is render'd unfit to form a perfect Suppuration.

9. The Expansion of the cancerous Matter increasing, as the Circumference of the Skin cannot be extended in the same Degree, the Lips of the Ulcer will, consequently, be turned back, and look very ill.

10. Lastly, the Veins being compressed on every Side, the Blood not only stagnates in the Parts which are situated near the Tumor, but, by this Stagnation, puts off its natural red Colour, and contracts one more black, from whence proceed the livid and varicose Branches of Vessels, with which the Cancer is surrounded.

The Nature, State, and Differences of the cancerous Bubo, readily appear from the Description of it. But the Causes of it may be discover'd, by examining the Way of living which has preceded it.

As to the Prognostics, the cancerous Bubo is a terrible and dangerous Disease, which is seldom cur'd, and never without the Knife, and actual Caution.

If the Bubo strictly adheres to the subjacent Parts, since it can neither be extirpated with the Knife or Cathartics, it is evidently incurable, and can only be treated with Palliatives.

But if it is moveable, and not firmly united with the subjacent Parts, it may be perfectly cur'd by Extirpation, if it is at a sufficient Distance from the Crural Vessels, that the Operation may be perform'd without Danger.

In general, the larger cancerous Bubo is of more dangerous Consequence than the smaller; the painful, than that which is attended with but little Pain; the ulcerated, than the occult.

The Method of Cure is different, according to the different Condition of the Tumor; that is, curatory, if it is moveable; but palliative only, if it is fix'd.

I. In the first Case, the present Indication requires, that the cancerous Tumor be speedily taken out, lest the neighbouring Parts be brought into Consent, or lest, by being increased in Size, it should adhere to the neighbouring Parts.

Therefore,

1. The Patient should be prepar'd for the Operation by universal Remedies, as by Bleeding and Purging, by alterative Broths or Apozems, by Asses or Cows Milk, or Whey, by mineral Waters, and by Bathing, which should be varied according to the Constitution, State, and Age, of the Patient, and the Season of the Year. Mercurial Unction should even be premised, if there is any Suspicion of a conceal'd Venereal Infection, as is frequently the Case.

2. In the Opinion of some, Cathartics should be us'd, especially Preparations of Arsenic, corrected, or calcin'd, with which, they assert, the whole cancerous Gland will be mortify'd, as they term it, and fall off with little Trouble. Of this Opinion are *Fallopianus, Sennertus, Vigierius, Faber, and Johannes Baptista Alliot*.

3. But this Method, tho' perhaps it may be attempted upon small cutaneous Glands, with a very sparing Hand, yet we think it dangerous, and not safe, in larger or deeper Cancers: (1.) Because Cathartics applied liberally, by Irritating, Stimulating, and Corroding, bring on an Inflammation, attended by a Fever, which is never free from Danger. (2.) Because, by the acute Pain which they occasion, they change the neighbouring Parts, which were sound, into a cancerous Nature, by which means the Cancer increases, and adheres to the subjacent Parts, from whence it was before free. (3.) But principally, because I could never think the Use of Arsenic safe, however prepar'd, calcin'd, or corrected. For it has been known more than once, that a miserable Death has been brought on by the external Use of Arsenic. Concerning this see *Fernelius, Method. Medendi, Lib. 16. Cap. 18.* where he tells you, that Arsenic and Mercury Sublimate being applied to a cancerous Breast, destroy'd the Woman in six Days, in the same manner as if it had been taken by the Mouth.

4. It is better, therefore, to extirpate the moveable Cancer by the Knife instantly. To this End let the cancerous Gland be taken hold of with the Fingers, a Ligature, or a circular Pair of Forceps: then divide the Skin and the Basis of the Tumor all round with a Knife, arm'd half the Way up with Lint wrapt round it, till the Cancer is wholly extirpated, taking great care, that nothing be left which may be suspected to be of a cancerous Nature. The Flux of Blood may be stopp'd either with a Ligature, if the Vessels from whence it flows are large, or only by the Application of a small Piece of Vitriol. The Wound may be fill'd up with dry Lint, which should be pressed down for some time with the Hand, till the Blood is stopp'd. Then, upon the second or third Day, when the Lint falls off, the remaining Ulcer is to be treated with common digestive Balsamum Arcei, or Balsamum Virido, according to the Rules of Art.

5. But it is necessary, that the Surgeon attend diligently to

the following Circumstances: (1.) That if any small cancerous Gland, or Gland of a cancerous Nature, remain, it should be carefully extirpated; for a Cancer is of the Hydra kind, which will constantly spring up again, unless all its Heads are taken off. (2.) That he should carefully provide for the Regeneration of good Flesh, by treating the Ulcer with the greatest Caution, lest it degenerate into a Fistula, which is too frequent in cancerous Ulcers.

6. Lastly, the Ulcer being healed, or tending to form a Cicatrix, the vitiated State of the Blood, which was brought on by the Cancer, and which afterwards aggravated and kept up the Cancer, is to be corrected by proper Remedies, lest a fresh Cancer should arise in another Part. To this End the palliative Method, which we shall describe below, will be of Service; for all those Remedies which conduce to the Mitigation of the Cancer, are of Use in preventing it.

II. In the other Case, that is, if the cancerous Tumor adheres to the neighbouring Parts, and therefore cannot possibly be extirpated by the Roots, you must refrain from all Operation, as useless, and even pernicious, and only insist upon the Use of palliative Remedies.

1. But there are not wanting those who will promise a perfect Cure, even in this Case, by the Use of Cathartics, those especially of the arsenical Kind; but the Patients, who rashly trust to their great Promises, will suffer a most miserable and cruel Death for their Credulity: For there is no Reason to expect, that this Method of Treatment should be serviceable in a fix'd Cancer, which we just now demonstrated to be prejudicial in one which is moveable.

2. It is best therefore, in this Case, for the Patient to look for no Cure, and, laying aside all vain and dangerous Credulity, only to take all possible Care to prevent the spreading of the Cancer: Let the vitiated State of the Blood be corrected, and the Pains, which cruelly torment the Patient, asswaged: Lastly, let Life be prolong'd as much, and upon as easy Terms, as possible; and to these Ends the palliative Method wholly tends.

3. Therefore let the Patient be every now-and-then purged, not with strong Cathartics, as some rashly advise, but with the milder Sort, as Manna, Cassia, Rhubarb, or Syrup of Peach-flowers, which gently carry off the ill-digested Chyle, and Foulness of the Bile, which lies in the first Passages, without giving any violent Stimulus.

4. A Vein also should be sometimes open'd in either Arm, if the Pain and Heat are violent; for by this Method, like Vessels being emptied, the Arteries which run near the Tumor will be less turgid, and therefore, vibrating with less Force, will bring on less Heat and Pain.

5. The Patient must be forbid the Use of Wine, Venery, immoderate Exercise, vehement Passions of the Mind, salt, spiced, sharp, or preserved Meats of any Kind; and be prescribed a thin, moist, cooling Diet, of Barley, Rice, Pudding, light Broths, or Jellies, or at most Chicken or Veal in Substance.

6. Cooling and diluting Broths or Apozems are to be used at the same time, and light chalybeated mineral Waters; Baths or Semicupia in warm Water, Asses or Cows-milk, or Whey, or, what is better, Cows-milk, for constant Diet, or used very frequently at least; and, lest it should offend the Stomach, you may add to the Morning Dose Lime-water, from one Ounce to three Ounces; or of the bitter Decoction of the Leaves of Wormwood, Centaury, and Germander, to three, four, or five Ounces; or, before the Morning Dose, you may give a Bolus of red Coral, Crabs-eyes, *Peruvian Bark*, Blood-stone, seal'd Earth, Chalk, or any of this Kind which may be prescribed, of each one Scruple, if you mix two or three of them together.

7. If the Cancer is an occult one, no topical Remedies are to be applied to it; neither warm, sharp, dispersing Medicines, which, by their Heat, aggravate the Disease; nor cooling, anodyne, fatty, softening Medicines, which, by stopping up the Pores, and obstructing insensible Perspiration, increase the Heat of the Tumor, and by that means forward its Progress. It is sufficient therefore to guard it from Cold, or any Injury that it may receive from the Moisture of the external Air; which is no difficult Matter, if you consider the Part which the Tumor occupies.

8. On the other hand, if the Cancer is ulcerated, then it will be necessary to dress the Ulcer daily, to clean it gently with dry Lint, and to wash it with Decoction of Agrimony, or Herb-Robert; and to mitigate the Acrimony and Piercings of the defluent Humour with Topics, which are possess'd of an anodyne or absorbent Quality, so that they are not of an unctuous Nature. Various kinds of Remedies are recommended to answer this Intention, but the following seem to be preferable to the rest:

Ointment prepared of the fresh-express'd Juice of the Garden Nightshade, beat with a Leaden Pestil, in a Leaden Mortar, with the Sugar, or rather Magistery, of Lead.

Fresh

Fresh Oil of Eggs, beat in a Leaden Mortar till it grows black.

A thin Plate of Lead; either alone, or rubb'd over with Mercury.

The Flesh of common Snails, or of Cray-fish; boil'd much; and rubb'd in a Leaden Mortar.

Slices of Veal, just kill'd; or young Puppies; slit thro' the Middle, and applied hot to the Part.

Oil of green Frogs, distil'd *per Descensum*, with an Addition of powder'd Frogs, Toads, or Craw-fish.

All Preparations of Tutty, Pompholyx, and Lead.

9. If the shooting Pains are very violent, Narcotics should be mix'd with the foregoing Remedies, as Opium, from one Grain to two or three. They should also be given internally in a proper Dose, that the Pain by this means may be more powerfully allwaged; which we would have understood of the moveable Cancer, if it is attended with acute Pains, and also of the occult.

10. Lastly, it will be proper at the same time to restrain the Luxuriancy of the fungous Flesh with a mild cathæretic Medicine, of which Sort we have found the *Balsamum Chalybis* to exceed all others; for this kind of Balsam destroys the fungous Flesh by corroding it, but in a very gentle manner; for the corrosive Points of the Spirit of Nitre are rubb'd down by Fermentation, and blunted by the Olive-oil. But, if it shall seem necessary, that Balsam may be render'd still weaker and weaker, and by that means less corrosive, if, by repeated Ablutions, the acid Points of the Spirits of Nitre are wash'd off. *Astruc.*

The BALSAMUM CHALYBIS is thus made.

Take of double Aqua-fortis, three Ounces: Put into this Needles, made of the purest Steel, which may be known by their Brittleness, till a small Ebullition is raised. Then add three or four Ounces of the best Olive-oil. Mix them to the Consistence of a Balsam. When cold, dulcify it, by repeated Washings with Water; by which its corrosive Quality may be taken off to what Degree the Compounder pleases.

BUBONIUM. See ASTER ATTICUS.

BUBONOCELE, βυβανοκηλη, from βουβων, the Groin, and κηλη, a Tumor, is a soft Tumor in the Groin, caused by a Wound or Rupture of the Peritonæum, which was never conglutinated. If it arises about the Navel, the Patient has the Epithet of *Exomphalos* bestow'd upon him by some Physicians.

The Falling down of the Intestines, occasion'd by a Rupture of the Peritonæum, is a difficult Case; but if it be owing to the Thinness of its Contexture only, it is more easy to be cur'd, especially in Children, as they abound with Humidity.

While the Intestine continues above the Groin, the Disease is named *Bubonocèle*; but, when it descends into the Scrotum, it is called an *Enterocèle*. *P. Aeginet. Lib. 3. Cap. 53.*

An *Enterocèle*, occasion'd by Distention or Stretching of the Part, is preceded by a *Bubonocèle*; for the Peritonæum being distended, the loosen'd Intestine falls upon the Groin, and constitutes a *Bubonocèle*. *P. Aeginet. Lib. 6. Cap. 66.*

Dr. *Freind* has the following Remarks upon the *Bubonocèle*, or Inguinal Hernia, which are too curious to be omitted.

An Inguinal Hernia, according to all Authors, is only the Beginning of an Intestinal; the Gut, they say, must descend by the Groin first, before it can pass into the Scrotum; and therefore *Paulus* says, that a *Bubonocèle* always precedes an *Enterocèle*. Accordingly all Anatomists, as well as Surgeons, have agreed, that in a *Bubonocèle* the Gut comes down thro' the Rings or Perforations of the Abdominal Muscles. But tho', no doubt, this be often the Case, yet perhaps, if we examine the Matter a little more nicely, we shall find, that the Gut may take another Course, hitherto unobserv'd, to produce a *Bubonocèle*. The Cavity in the Thigh between the Muscles *Pectineus* and *Sartorius*, where the Crural Vessels descend, is very remarkable: And the Tendons of the Abdominal Muscles lie so loose, that there is nothing but a little Fat, and some membranous Fibres, which separate it from the Abdomen; so that we see how easy it is for the Peritonæum to be forced down by any Pressure, thro' this Interstice into the Cavity we have describ'd; especially since, considering our erect Posture, it lies in a more direct Line than even the Rings of those Tendons. And if we compare the Accounts of those very Authors, who think that a *Bubonocèle* is always formed in the Processes of the Peritonæum, we shall find them often agree to this Place only.

Aquapendente remarks, that a *Bubonocèle*, and a *Varix* of

the Crural Vein, have often been mistaken for a *Bubo*; in which Case, upon Incision, the Vein or the Gut has been cut, so as to endanger the Person's Life. *Buboes*, we all know, are always in those Glands which lie upon the Crural Vessels; and therefore 'tis plain, he thinks, in many Instances, that a *Bubo* and a *Bubonocèle* are in the same Place, that is, in the Place we have taken Notice of. Upon this Account too it seems to be, that *Celsus* called a *Bubonocèle* a *Varix Inguinis*.

The late Mr. Serjeant *Bernard* was concern'd in a Case, where the Gut reach'd under the Skin down to the Middle of the Thigh; in which Instance it must descend through the Interstice, under the Tendons of the Abdominal Muscles; for, if it had come down through the Rings, it must have gone directly into the Scrotum; and not turned down the Thigh. And *Barbette* seems to imply this Way, tho' he has express'd it with the same Obscurity as other Writers do, when he says, *Experimur etiam processum Peritonæi ita possi dirumpi, ut Intestina non in Scrotum, sed inter Cutim & Musculos, versus Femur, sese urgeant*. Where by the Words, *processum Peritonæi*, if he means the Productions which arise from the Vaginal Coat, we have seen; that the Gut cannot get into the Situation he describes. Perhaps it may give us a little more Light into the Matter, if we consider the Inguinal Hernia in Women. *Fallopious* deduces it from the round Ligaments of the Womb, which make the same Perforations in the Tendons of the Abdominal Muscles of that Sex, as are in those of Men. 'Tis very true, they do, but not in the same Place; for these Rings in Women lie just upon the Os Pubis, and the Ligaments, as soon as ever they are pass'd through them, are strongly inserted with the Tendons into the Bone. So that, by the Straightness of the Passage, there seems to be little room for a Hernia here: and if there were, the Gut must lie just forward upon the Os Pubis, as indeed we find sometimes it does, even as far as the very *Labia Pudendi*. But I believe in such Ruptures it will be found generally to take its Course much more aside, towards the Os Ilium. And therefore *Celsus* expressly says, that a Hernia in Women *fit præcipue circa Ilium*. That the Peritonæum may be distended in this Place, is plain from the Account *Nuck* gives us of a Dropsy in this Membrane, which spread itself, he says, and form'd a Sack in the Thigh, *per vacua musculorum spatia*. And *Hildanus*, in explaining the Reason of a *Hernia Uterina*, thinks the Extension of the Peritonæum happen'd *circa foramina illa, circa quæ Bubonocèle fit in Mulieribus*: and if we compare these Words, which are ambiguous enough, and perhaps left so on Purpose, with a Description of the Posture which is given of the Tumor, we shall find them only applicable to the Interstice we speak of. How capable the Peritonæum is of a large Distention, an Ascites alone will sufficiently convince us; and that such a Distention as there is generally in the present Case, without any Rupture, may happen, not only at its Productions in the Groin, or the Navel, we may find sufficient Proof in the Writers of Surgery. *Barbette* gives Instances of such Hernias in the Back, above the Navel, below the Navel, *longe supra Ilium*, he says, which have been by Mistake cut for an Abscess. *Paulus* indeed distinguishes the Intestinal Hernia, as it proceeds either from a Rupture, or a Distention of the Peritonæum; and says expressly, that the Operation by the Knife is only to be attempted in the latter Case. But whoever with Attention considers the Anatomy of these Parts, must, I think, be of a quite contrary Opinion; for in a Rupture of the Peritonæum, if the Operation be perform'd, and the Gut once reduced, we may conceive how all the Parts of the Peritonæum, as well as the rest, may be so healed and united, as not to give way to any Descent of the Gut for the future. But in the Case of Distention, if, after the Operation, the Peritonæum remains distended, as it must, how is the Return of the Hernia prevented? To form a right Notion of such a Distention, one ought to see the curious Preparations of that diligent and accurate Anatomist Dr. *Douglas*, who is the first who has given us any true Idea of the Peritonæum, a Part which is so much concern'd, and whose Structure should be so much consider'd, not only in this Operation, but in the High-way for cutting for the Stone. *Freind's History of Physic*. See the Account of the *Hernia Cruralis*, in the latter Part of this Article.

A Tumor proceeding from the Falling down of the Intestines, or Omentum, or both together, through the Processes of the Peritonæum, towards the Groin, is called by Physicians a *Bubonocèle*, taking its Name from *Bubo*, as resembling that Disease. Some, with *Celsus*, have called it a Rupture of the Groin, or a *Hernia inguinalis*. Others have named it an *incomplete* Hernia, distinguishing it from that perfect Hernia, which in Men is form'd by the Falling down of the Intestines into the Scrotum; tho', to speak the Truth, the former of these Disorders wants nothing to make it a *complete* Hernia. Commonly there is a Prolapsus, or Falling down, of the small Intestine only; but sometimes it is attended with that of the Colon, and the Cæcum, especially on the Right Side of the Groin, of which I have known some Examples. And not only

only Men, but Women also, are frequently affected with such Ruptures, and that to so great a Degree, that the prolapsed Intestines have sometimes penetrated to the very Labia Pudendi. And not only *Ruyfch*, but *Petit* and *Arnaud*, have observ'd a Prolapsus of part of the Bladder; and *Hildanus*, as well as *Ruyfch*, mention a Falling out of the Uterus into the Groin. We ought therefore to be extremely cautious, lest by mistaking a Bubonocèle for a Bubo, or any other like Tumor or Abscess, we make an Incision in the Part, and so, by perforating the Intestine, destroy the Patient. This is a Caution given by *Fabricius ab Aquapendente*, as well as by many modern Authors.

A Bubonocèle arises from two different Causes; for sometimes the Perforations in the Muscles of the Abdomen, through which the Processus of the Peritonæum, and the spermatic Vessels, pass, or those which transmit the Crural Vein and Artery, are by Degrees, and almost insensibly, by various Causes, relaxed, in such a manner, as to give occasion for the Intestines, together with the internal Membrane of the Peritonæum, to break through. Sometimes on a sudden, and by violent means, as Leaping, a Fall, a Blow, Overstraining in moving or lifting great Weights, or any other way, a Cough, Vociferation, blowing a Wind-instrument, Riding, violent Gestation, eager and immoderate Venery, Vomiting, or any other forcible Way, the Peritonæum, in the Places before described, is either lacerated, or, according to the general Opinion of the Moderns, so far distended, as to make way for a Falling thro' of the Intestines, sometimes with, and sometimes without the Omentum. Sometimes only one Side of the Intestine, opposite to that which joins the Mesentery, is engag'd in the Perforations or Rings, as *Morgagni* and *Ruyfch* observe, and of which Mr. *Littre* relates a History in the Memoirs of the Academy of Sciences for 1700.

When this Disorder comes on slowly, and by Degrees, the Patients for the most part feel no great or frequent Molestations or Inconveniencies; but if they become sensible of the Distemper on a sudden, or, after they have long been afflicted with it, expose themselves too much in the Cold, use violent Motion or Straining, fall into a violent Fit of Anger, as I have observ'd, or make too plentiful a Meal, especially on gross Aliments, and such as are of bad Juice, they commonly suffer very severely from it. For not only the Intestines are miserably distended by the Fœces, but sometimes the Openings or Perforations, through which the Intestines fall, are streighten'd to such a Degree, as to compress the Intestines in an extraordinary manner, so as to hinder them from transmitting any of their Contents, and even to stop the Circulation of the Blood in their Veins. Such a Case must almost necessarily be attended with a great Inflammation of the Intestines, Pains, Inquietude, violent Vomiting, and the Iliac Passion, commonly called the *Miserere mei*, just in the same manner as these Symptoms are excited by an *Omphalocèle*, or *Gastrocèle*; and so there is form'd a sort of *Hernia incarcerata*, as Physicians call it. Here take Notice by the way, that they who labour under a Hernia of the Scrotum, are often exposed to the same Inconveniencies; for which Reason all Persons afflicted with a Hernia, whether it be of the Navel, the Groin, or the Scrotum, ought never to go without a proper Girdle, Fillet, Bandage, Bracers, or Truss; and, after they have worn them, should be very cautious of leaving them off, for fear of exposing themselves to the Danger of a *Hernia incarcerata*, which very often destroys the Patient; tho' it cannot be deny'd, that such Disorders may sometimes happen to those who are secur'd by Bandage or Trusses, on occasion of hard Riding, or any other violent Commotion of the Body, by which the Truss is broken, or mov'd out of its right Place, or loosen'd in such a manner, that the Intestines force a Passage out of the Abdomen. Such an Accident once happen'd to the Duke de Villeroy, a Marshal of France, while he was hunting, as *Dionis* tells us in his Book of Surgery, where he treats of Hernias. Persons therefore under such an Affliction, should either ride not at all, or be very cautious in riding.

A *Bubonocèle*, or *Hernia inguinalis*, is commonly known by the following Signs: There is a Tumor in the Groin, which extends itself to the Ring of the Muscles of the Abdomen, and, when it is not incarcerated, is sometimes visible, and then again disappears, according to the different Situations and Motions of the Body. When we apply our Hand, we plainly perceive an equally hard Prominence, not unlike an inflated Intestine. As the Disorder gradually increases, the Tumor, when gently depressed with the Hand, and especially when the Patient lies upon his Back, quite vanishes, retiring into the Abdomen with a sort of rumbling Noise. But when there is only a Prolapsus of the Omentum, the Tumor is commonly softer, and like Fat to the Touch, and not mutable in Bigness, like that of the intestinal Hernia, but, for the most part, constantly appearing the same. When there is a Prolapsus of both the Omentum and Intestines, there is almost constantly a soft kind of Tumor, which remains after the Intestines are replaced. A *Hernia* which happens suddenly,

Vol. I.

and an incarcerated *Hernia*, are known by the following Symptoms: The external Tumor, sometimes when only excited by the Omentum, is remarkably red, with a Hardness and Inflammation. The Patients suffer most intense Pains, both internal and external, attended with a vehement Heat, or a Fever; and commonly violent and obstinate Vomiting, quickly succeed, first of the Aliments, and natural Contents, and at last of the Excrements, with extreme Anguish and Agitations; under which the Patients are very much weaken'd, and faint at every Turn, till, falling into a cold Sweat, and Refrigeration of the whole Body, they at last expire, unless seasonably reliev'd.

As *Hernias* in general are accounted shameful Diseases, so especially are those which affect the Pudenda regarded as such, and therefore usually kept secret. The Event also of this Distemper is usually doubtful and dangerous, especially when it is degenerated into an incarcerated *Bubonocèle*. If the Intestines are not as yet intercepted or engag'd, and the *Hernia* comes on gradually, the Disease is the milder, and less dangerous, especially when the Intestines, after being replaced, are secur'd and restrain'd by some proper Truss or Bandage, which must be constantly worn for a long while. The Disorder, however, is very troublesome, and renders the Patient unfit for many kinds of Business; besides, it is to be fear'd, that the *Hernia*, tho' never so favourable, should by too streight a Constriction of the Tumor by the Truss, by little and little, or perhaps on a sudden, degenerate into a *Hernia incarcerata*, attended with all the foremention'd dreadful Symptoms. In a *Hernia incarcerata*, if the Intestines be not seasonably replaced, commonly after the second or third Day, and sometimes sooner, a violent Inflammation seizes the Parts, which in a very short time destroys the Patient; for which Reason we must be speedy in our Assistance, and if the Distemper be too stubborn to yield to Medicines, and the Symptoms are very threatening, we are not to delay the Operation, but enter upon it sometimes before the End of four-and-twenty Hours; for when the Strength of the Patient is exhausted, and red and black Spots appear on the Tumor, a Sphacelus is indicated, and a cold Sweat, and total Refrigeration of the Body bring on Death in a very few Hours. In such Circumstances, therefore, not only all Assistance from the Surgeon is useless, but it is greatly to be feared, lest the Patient should expire under an Operation sufficiently dangerous of itself, and so the Cause of his Death, which ought rather to be ascribed to a Sphacelus of the Intestines, should be rashly and inconsiderately imputed to the Operation. But when the Symptoms are more mild, and less urgent, and the Patient is yet sufficiently strong, the Use of the Knife may be defer'd. When the Omentum falls out with the Intestines, there is commonly less Danger, than when there is an Incarceration or Coarctation of the bare Intestine, tho' sometimes a Prolapsus of the Omentum alone has excited the Symptoms of a *Hernia incarcerata*, as is observ'd by several Authors in Cases where after Section they discover'd nothing but a Prolapsus of the Omentum. But as soon as the Tumor, the Redness and Hardness of it being in some measure diminish'd, begins to grow black, with a kind of Softness, or appears with red, livid, or blackish Spots, as we said before, and has lost the Sense of Feeling, and a continual Vomiting, with a Fever, afflicts the Patient; if the Pulse be weak, and the Eyes look disturb'd, and, as it were, corneous, we ought to consider these Symptoms as manifest Indications, that the Intestines are already seiz'd with a Sphacelus. If the Inflammation be communicated to the interior Parts, which is conjectur'd by the Distention of the Belly, and the Elevation of the Navel, there is little or no Hope of Life. And in the last Place, where there is a Coalition of the prolapsed Intestines with the other Parts, the Method of Cure by the Knife usually proves very doubtful and difficult, because the Intestines can very seldom or never be replaced within the Belly, unless by means of the Knife they are separated from the Parts to which they adhere, which is sometimes impossible to be effected, especially in a *Hernia femoralis*, when the Intestines have made a Coalition with the Crural Vein or Artery, as *Garengeot* has observ'd. They may therefore be thought to be in the right, who are of Opinion, that the Antients never undertook a Chirurgical Operation of this kind; for neither *Celsus*, nor *Pandus Aegineta*, nor any other of the Antients, as far as I know, have mention'd it. However, because this Method of Cure has been often found to be of Service, tho' attended with many and great Difficulties, we think that in due Season it ought by no means to be neglected.

There are, in general, three Methods of Cure, which are to be chosen according to the Degrees and Age of the Distemper. Where the prolapsed Intestines may be commodiously restor'd, the Method of Treatment may be as follows: The Patient being laid upon his Back, with his Thighs somewhat bended, that the stretched Skin may have Liberty to relax, the prolapsed Intestines, with all that belongs to them, are to be taken with the Hand in the softest manner imaginable, and

repressed into their proper Situation with all possible Gentleness ; after which a glutinous Plaister, with a Bolster, must be laid on the Part which transmitted the Intestines, and fasten'd and secured by a fit Bandage, or Truss, furnished with its Bolster, or Escutcheon, various Sorts of which are represented *Tab. 46.*

This Instrument by keeping the Belly, and the relaxed Parts, in a firm and proper Constriction for several Months together, if the Patient be a Child, and oftentimes in adult Persons, effects a Conglutination, and a perfect Cure, or at least so contracts and freightens the Aperture, that the Intestines no more falling out, the Abdomen, and the relaxed Part, are in a great measure restored to their former Tone and Vigour. It is certain, that Infants, Children, and young Persons, or such as are not much above twenty Years of Age, may for the most Part by this Method, with the greatest Ease and Success, be restored to a perfect Soundness ; and consequently, there is no Necessity of immediately subjecting them to a cruel Section under the Hands of strolling Quacks and Mountebanks, since a much milder Treatment would have done the Business ; besides which it ought to be consider'd, that the sole Aim of these Pretenders is to extort as much Money as they can for the Cure, which costs the Patient a Testicle, and oftentimes his Life. Elder Persons, who have once experienced the Method of Cure by Trusses, ought to be very cautious how they leave them off during their Lives, unless they have a Mind to run over a new Course of Pain and Trouble ; and they ought no less to avoid all violent Agitations of the Body. Numbers of Persons, who have formerly labour'd under a Hernia, with due Caution, and the Help of a proper Bandage, have been enabled to follow Business, and live to a good old Age. As for young Persons of twenty Years of Age, or more, if the Disease be but newly contracted, I have very often known them to be happily cured by wearing proper Bracers (*Brachetia*). *Heister. Chirurg.*

BUBONOCLE, or HERNIA INGUINALIS, INCARCERATA.

If the Hernia be incarcerated, or intercepted, whether it be by the Ring of the Muscle of the Abdomen, or, as *Le Dran* observes, by the upper Part of the Sack itself, which contains the prolapsed Intestines ; and the Circumstance is such, that not only the Patient suffers most acute Pains, but the Intestines cannot conveniently be reduc'd ; some immediately betake themselves to the Knife, for enlarging the Opening thro' which the Intestines are thrust out, in the same manner as is directed for the *Omphalocele*. However, because the Cure of a *Hernia incarcerata* principally consists in restoring the prolapsed Intestines, or Omentum, with all that belongs to them, to their former Situation, it is the Part of a prudent Physician first to try milder Remedies, before he proceeds to so painful and dangerous an Operation. Therefore, besides Phlebotomy, which is often of very great Service in this Case, and the same, if necessary, repeated, there ought to be frequent Applications of mollifying Oils, Ointments, or Cataplasms ; and the Belly is to be evacuated by Clysters, till both the Intestines, and the Openings thro' which they burst, being sufficiently mollify'd, all that is removed from its proper Situation may, by means of the Fingers, be reduced to their proper Place within the Abdomen ; and the most convenient Way of Operation for this Purpose is as follows : The Patient, having first made Water, is to lie on his Back, with his Head depressed, his Hips pretty much erected, and the Thigh of the affected Side a little bent ; then the Intestines, by Application of the Fingers upon the Tumor, and, as it were, circularly agitating the same, are to be repressed towards the Os Ileum, and restor'd to their proper Situation. This done, that Part of the Abdomen whence the Intestines burst forth, is to be very carefully held by an Assistant, that the reduc'd Parts may not break out again ; and, in the last Place, a proper Bandage is to be made, by applying a glutinous Plaister, with a thick simple or double triangular Bolster, upon the defective Part, and securing their firm Adherence, bringing over them a kind of Fillet, which they call *Spica Inguinis*, or Straps of Leather. This Bandage must not be left off without the utmost Caution, but must be worn for a long while, and, if the Age of the Patient requires it, during Life. But if the Intestines cannot be reduc'd by the foregoing Method, it will not be amiss to attempt the Cure by means of a Clyster of the Smoke of very strong Tobacco, continually injected into the Anus for a sufficient Time, by Help of a peculiar Machine, represented in *Tab. 55. Fig. 13.* By Help of this Instrument I have cured several, and, among the rest, a Man upon whom all other Clysters had no Effect, and who, for three Days, had suffer'd the most tormenting Pains from an *Hernia incarcerata* ; and, on account of the intolerable Factor of his stercoraceous Vomitings, and the extreme Weakness of his Body, was given over by all who attended him. And I have since restor'd several others by means of this Fume of Tobacco, so that hitherto I have had no Occasion to make use of the Knife in these Cases. *Gladius* supposes, that the prolapsed Intestines may very commodiously be restored, by means of frequent

Applications of Linen Cloths, dipt in cold Water, to the Tumor. This Method, while the Disease is recent, I believe, may not be altogether ineffectual ; but, where the Intestines have contracted any Corruption, I am of the contrary Opinion.

When the prolapsed Intestines cannot be reduced by the foregoing Method, which is sometimes the Case, as when the Tumor is grown too hard, and the Inflammation, with the Pains, and stercoraceous Vomitings, are come to a great Height, it is the Part of a prudent Physician to inform the Friends and Relations of the Patient, of the great Danger of the Case, and of the Necessity of having recourse to the Knife, not forgetting to represent also the Difficulty of an Operation of this kind. And this is to be done in Season, before the Patient be grown too weak, or the Intestine corrupted, and the dubious Hopes of Life, by Delay, converted into Fear of present Death, that the Destruction of the Patient may not be imputed to the Surgeon, when it was impossible to save him. When, therefore, the Patient, with the Consent of his Friends, is willing to submit himself to the Operation, he is, first of all, to empty his Bladder, lest, being distended with Urine, it should hinder the Regress of the Intestines, or be hurt with the Knife. The Urine, then, being discharg'd, the Patient is to be laid on his Back, on a Table, or the Side of a Bed, and the Groin, if hairy, shav'd, that the Hairs may not be an Impediment to the Operator. Then, the Head being depress'd, and the Hips rais'd, the Patient is to be firmly held by some of the strongest Assistants, the Thigh adjacent to the diseas'd Part being a little bent, in order to avoid too great a Distention of the Skin. After this, the Surgeon takes up the Skin, together with all the Fat, on one Side of the Tumor, whilst an Assistant does the same on the other, and, raising it as much as possible, makes a strait Incision with the Knife thro' the Middle of the Tumor, and afterwards widens the Wound, both upwards and downwards, as much as he thinks sufficient. But if, by reason of the Violence of the Inflammation, the Skin cannot be taken up in the manner aforesaid, as it sometimes happens, the Operator takes hold of the Tumor with the Thumb and middle Finger of his Left Hand, and, with the greatest Caution, and Steadiness of Hand, drawing the Knife downwards, makes a strait Incision over the Middle of the Tumor ; but so slight a one, as only to divide the Skin, which, in these Sorts of Tumors, is usually very thin, for fear of cutting the Intestines, which sometimes happens, and endangering the Life of the Patient. The Skin being a little divided, in the manner directed, a groov'd Probe is to be introduc'd between the Skin thus divided and the Tumor, and the Wound enlarg'd, with the Knife or Scissars, above and below. After this, the Lips of the Wound being kept asunder, by Hooks, on each Side, and the Knife laid aside, to avoid injuring the Intestines, whatever Portion of Fat, or of the Membrana Cellulosa, may be found cohering, must be carefully separated, by means of the Probe, the Spathula, the Handle of a Knife, or the Nails of the Fingers, till the Intestines, or, what more frequently happens, their Integument, which is a Dilatation of the Peritonæum, and call'd the *Bag*, appears in View. The modern *French* Surgeons, as *Garengeot* assures us, gently and warily divide the Laminæ of the Membrana Cellulosa, that this Part of the Operation may the sooner be over, not with a blunt Instrument, but with the Incision-knife, which they draw along, not in a perpendicular, but oblique, Direction, till they come to the Bag before-mention'd, when the utmost Circumspection is requir'd, in order to avoid wounding the Intestines with the Knife. While we are cutting this Integument, or Bag, it seems necessary, for the Security of the subjacent Intestines, to pinch it up a little between the Thumb and fore Finger of the Left Hand, and, with the Knife, or Scissars, warily applied, make a very slight Incision, or only a small Perforation. While this is doing, the Surgeon ought not to be terrify'd, if any thing like Serum, or Water, should happen to gush out, as if he had wounded an Intestine, (for some sort of aqueous Liquor almost constantly occurs) but must go on with the Operation, in cutting up the Bag, till he comes to the Perforation, or Annulus of the Abdomen, which is done by means of a Pair of Probe-scissars, or a Knife, either strait or crooked, introduc'd by Help of a groov'd Probe, or a Knife arm'd with a Button, (see *Tab. 26. Fig. 3. 4. and 5.*) which *Garengeot* prefers before all other Instruments, or by the Scissars, or Knife, introduc'd upon the Finger. If, during this Incision, any little Blood-vessel should happen to be cut, and, by bleeding plentifully, hinder the Operation, it must be compress'd, by an Assistant, with his Fingers alone, or a Bolster under them, or a Ligature may be made on the Vessel with a Needle and Thread, and the Blood must be absterged with a Sponge, or Linen Rags. Thus being done according to Art, the next thing is, by a gentle Compression of the Fingers, to force back the Intestines, if they have escap'd sound, thro' the Ring of the Muscles of the Abdomen. In this Attempt, if the Surgeon be hinder'd by the included Fæces or Flatus, he must first try to remove them by gentle means ; but, if such a Method prove ineffectual, the Place of the Prolapsus, that is,

the Opening, or Ring of the Muscles of the Abdomen, must be enlarg'd to a sufficient Breadth with the Knife, but with Caution, and inwardly, or towards the Linea Alba, for fear of cutting the Epigastric Artery, which runs along the Outside, and thereby causing an immoderate Effusion of Blood. But if this should happen, the Blood must be stop'd by a Pledget of Lint, arm'd with a styptic Liquor, and by Compression against the Os Ileum. If there be an Adhesion of the prolapsed Parts externally, they must be loos'd with the greatest Caution. The Instruments proper for dilating the Annulus are the Knife, or the before-mention'd Instruments; and, for Defence of the Intestines, are the Probe, with a Plate in the Figure of a Heart, (Tab. 45. Fig. 8.) or *Morandus's* Knife, (Tab. 45. Fig. 9.) or that of *Le Dran*, (Tab. 45. Fig. 10.) inclosed in a Sheath, as in a sort of hollow Probe. For some time those Knives, which are delineated, (Tab. 46. Fig. 1. and 2.) and are inclosed in Sheaths, were very much in Request for this Purpose. The first of these is here represented, (Fig. 1.) conceal'd within its Capsula (A. C.), which, after its being introduc'd into the Place of the Prolapsus, by pressing the Plate (B.), comes out of its Capsula, as is shewn, (Fig. 2. A.) and makes an Incision in the Place of the Prolapsus, whether it be the Ring of the Muscles of the Abdomen, or the upper Part of the Bag, in which the Intestines suffer a Strangulation. But, because the interior Parts are more subject to be cut and wounded, when the Point of the Instrument first comes forth and cuts, than the Part which compresses the Intestines, the former Instruments are now justly look'd upon as the most convenient. But lest the Intestines, as being remarkably lubricous, should happen to rush out, and fall upon the Knife, while we are busy in using the simple groov'd Probe, or *Morandus's* Knife, (Tab. 45. Fig. 9.) they ought to be carefully repressed, and held down by an Assistant. For the same Purpose, under the Instrument represented (Tab. 46. Fig. 2.) is a Plate (D.), which afterwards *Messieurs Petit* and *Le Dran* imitated, and endeavour'd to correct; the first in a Probe, represented (Tab. 45. Fig. 8.), and the other is figur'd (Tab. 45. Fig. 10.). The Place of the Prolapsus being dilated, the Intestines are to be replac'd, and secur'd with Linen Compresses, triangular Bolsters, and the Bandage call'd the *Spica* (see FASCIA). Some first scarify the Annulus, in order to raise a firmer Cicatrix, by which the Return of the Hernia is the more easily prevented. This Practice I judge not to be altogether amiss, especially in a lax State of those Parts. And some there are who introduce a long Tent into the Opening of the Abdomen, and apply Bolsters upon it; which Method, in a recent and simple Disorder, I think is needless, or rather hurtful; as, on the other hand, in an inveterate and complicated Disease, where the Humours are vitiated and putresc'd, and there is an inward Abscess, it may be convenient to use a Tent.

Tho' the prolapsed Intestines may be successfully replac'd by the Methods before propos'd, it will not be amiss to give a Description of other Ways, which some eminent Surgeons have try'd. Some, in Imitation, and by the Advice, of *M. Arnaud*, a famous Surgeon of *Paris*, having perforated the Skin, gently introduce a groov'd Probe, shut at the Extremity, as is represented (Tab. 22. M. and N.), under the Skin, and, cutting upon it with blunt-pointed Scissars, enlarge the Wound to a sufficient Wideness. Then taking hold of the Lips of the Wound with the Fingers of either Hand, with one Finger of the other they gently separate the Skin from the subjacent Tumor; and then cutting with the Knife, or Scissars, upon the Finger, divide the same as the Bulk of the prolapsed Intestines requires. After this, putting the middle Finger and Thumb of the Left Hand upon the Tumor, they take a sharp crooked Knife in their Right Hand, and, holding it a little on one Side, for the sake of better Light, and the more easily to avoid wounding the Intestines, or their Bag, they very cautiously cut thro' all the Tunics which inclose the Bag, which are sometimes more, sometimes fewer in Number, in proportion to the Inveteracy of the Tumor. If any Blood-vessels occur, they tie them in two Places before they cut them, that they may have no Impediment from an Hemorrhage; and whatever Blood happens to flow from the Wound, is carefully wip'd away with Linen Cloths. Whatever Pieces or Scales of the Tunics adhere, on either Side, to the Bag, they are either pull'd off with the Fingers, or cut away by the Probe-scissars, introduc'd upon a groov'd Probe. This done according to Art in every Particular, the next thing is, with the Thumb and fore Finger, to take firm hold of the upper Part of the Coat of the Tumor, or the Bag of the Intestines, and distend it upwards. Near this Bag, separated from whatever adheres to it, and left entirely imperforated, the famous *M. Petit* introduces his groov'd Probe with a sheathed Point, under the Annulus, by which the Intestines fall out, and enlarges the Passages by the Method before prescrib'd. Then, taking hold of the lower Part of the Bag with his Hands, he gently depresses the Intestines therein contain'd towards the Os Ileum, and so, by Degrees, reduces them to their former Situation. The Intestines being thus reduced, for their better Security against a future Hernia, he represses

also the Bag, being first doubled, thro' the same Opening; (in which, as he assures us, it afterwards hardens by Degrees, and firmly closes it up) applying upon it a Linen Ball, made of Linen Thread, and cover'd with Linen Cloth, call'd by the *French M. Petit's* Pellet, which is first well moisten'd with the White and Yolk of an Egg, beaten up with a little Spirit of Wine, and afterwards squeez'd, and roll'd within the Hands into a cylindrical or oval Figure. By the Sides of this Ball, and also upon it, are plac'd other very small Linen Balls, or Lint; and, in order to their firm supporting and keeping in the diseas'd Parts, they are cover'd with three or four triangular Bolsters, one larger than another, moisten'd with Spirit of Wine; and the Whole is very exactly secur'd with the Bandage call'd *Spica inguinalis*.

But, if we may speak the Truth, this last Method of Cure, which does not permit the Bag to be open'd, is not approv'd of by me, nor by those who are better Surgeons than myself; and that, first, Because there is commonly a Coalescence on all Sides of this Bag with the Spermatic Vessels, which are easily injur'd in their Separation from it. (2.) Because the prolapsed Omentum, or Intestines, frequently contract a Corruption; which, if the Bag be left closed within the Abdomen, can neither be known, nor conveniently remedy'd, and, consequently, may be the Cause of the Patient's Death. (3.) Sometimes the Bag includes a large Quantity of fetid Ichor, which cannot be repell'd into the Abdomen without most manifest Injury; for *Chefelden*, a modern and very celebrated *British* Surgeon, writes, that he has found about two Pints of fetid Matter, like Lees of Oil (*Amurca*), in a Hernia of this kind, which, if repell'd, and clos'd within the Belly, would doubtless have prov'd mortal. (4.) The Intestines, and Omentum; in these Cases, often grow to the external Parts, and, if the Bag be not open'd, can neither be separated, nor reduced without the Belly. (5.) The Bag left entire, especially if it be large, may easily give Occasion to a new Hernia, and be a fit Receptacle for it. (6.) This Method, in case of a Rupture of the Peritonæum, is altogether unsuccessful. These, and other Reasons, were very fully objected to *M. Petit* by *Manchartus*; Professor of Physic in the University of *Tubingen*, and formerly a Pupil of ours. And *Le Dran*, so often quoted, a Surgeon of *Paris*, does not at all approve of this Method; first, because no particular Advantage can be perceiv'd to attend it; and, secondly, because, if the Hernia be incarcerated for several Days, the Intestine is often corrupted with a Sphacelus, in which Case the vitiated Parts of the Intestine are separated, and fall off, as it often happens, or at least ought to happen, if the Patient recover; and the Chyle and Excrements would then be discharg'd into the Cavity of the Abdomen, and so necessarily destroy the Patient. For these Reasons I think it a better Way, for the most part, especially if the Disease be inveterate, and the Tumor large, to open the Bag, than to leave it entire; and I am of Opinion, that *Petit's* Method can safely be us'd only when the Disease is recent, and where there is no Corruption of the Intestines, no Concretion, and no Abscess; and *Garengeot* himself, in the second Edition of his *Surgical Works*, confines this Method of Cure within the Limits of these Observations.

Cyprianus, an eminent *Dutch* Physician and Surgeon, who spent the last Part of his Life in *England*, and to whom I am oblig'd in Gratitude, for what I there learn'd of him, practis'd much in the same manner as I have directed above for this Distemper, by opening the Skin, and Bag of the Peritonæum; but, instead of a Probe or Conductor, he us'd his Finger as the best Conductor, in order to enlarge the Wound in the Bag and the Skin. But when the Opening, or Ring of the Muscles of the Abdomen, was not large enough for reducing the prolapsed Intestines, he first introduc'd a groov'd Probe, with a Knife, for dilating the Ring; and then cutting upon his Finger with the Scissars, divided the Skin, Fat, Muscles, and Peritonæum, till he had made a Passage wide enough for reducing the Intestines without any manner of Violence. For he much recommended wide Incisions in this Case, so far as were sufficient for restoring the Intestines without much Trouble, and almost without any Pressure; since, if the Dilatation were too narrow, there would be too great a Compression and Collision of the Intestines, in our endeavouring to reduce them; which might easily give Occasion for dangerous Inflammations, Gangrene, and Death itself. Whenever he discover'd a Coalition of the great and small Intestines with the external Parts, he very dexterously separated them with the Knife, and then replac'd them in the Belly; after which he closed and conglutinated the Wound, by means of the knotted Suture, as is practis'd in Castroraphy. And not only *Celsus* has recommended this Suture in the Cure of this Disease, but the famous *Rouset* has directed it in a Hernia incarcerated; and the very learned *German* Physician and Surgeon *Rooftmeius*, a hundred Years ago, practis'd the same with Success, in the like Disease.

That celebrated *British* Surgeon, *Chefelden*, after the Example of *Rouset*, in curing an *Hernia incarcerata*, where the Intestines and Omentum were fallen out, open'd the Belly, that

the Skin, Fat, Muscles of the Abdomen, and the Peritonæum, with the Knife, by making a great and strait Incision above the Ring of the Muscles of the Abdomen, as far as the Place of the Prolapsus, and thro' this Wound introduc'd the prolapsed Intestines with his Finger. As for the Omentum which adher'd, he perforated it with a Needle carrying a double Thread; then ty'd it, and cut it off, and, by these means, happily restor'd the Patient. He has publish'd the whole Process in his Book of Anatomy, and illustrated it with Cuts; but whether he conglutinated the Wound by a Suture, as I suspect, or by any other Way, he does not inform us; and it were to be wish'd, for the sake of the Public, that he had given a fuller Description of so extraordinary an Operation and Cure, for the Improvement of the Art of Surgery.

The Intestines being, by some way or other, restor'd to their former Situation, as was directed, some use to make frequent Incisions and Scarification with the Knife, or Scissars, in the upper Part of the Ring, with this View, that a more firm and solid Cicatrix may be rais'd upon the Wound, in order to prevent a new Hernia; but a great deal of Care is to be taken, during this Operation, that the Intestines do not fall out afresh, or be cut. For avoiding these Accidents, they ought, in the first place, to be carefully held, and kept in with a warm Towel; after this, the Remains of the Tunic of the Bag are to be separated, then ty'd with a Thread near the Ring, and cut off below the Ligature; what is superfluous in the Skin must also be taken away. The Wound is then to be dress'd with Pledgets of Lint, and particularly the Ball or Pellet of *Petit*; and these are to be secur'd with thick triangular Compresses, and the Bandage call'd *Spica inguinalis*. When the Wound is thus dress'd, the Patient should be put to Bed, and some Hours after he should lose some Blood, unless already very weak. During the whole Course of the Cure, the Patient should lie very still, with his Head somewhat low, and his Diet should be spare, and easy of Digestion, as in other large Wounds. Then, if the Patient should not have sufficient Stools naturally, they should be every Day procur'd by emollient Clysters; and, if the Patient should continue without any bad Symptom for four or five Days after the Operation, we may reasonably expect a Cure will succeed; to promote which, it will be prudent to purge the replaced Intestines of all vicious Humours, by some proper laxative Medicine, administer'd during the first Days; but if Hiccoughs, and a Fever, supervene, we may be certain, that the Patient is in imminent Danger, and, perhaps, not to be sav'd by the most effectual Remedies, tho' immediately apply'd.

With respect to the Dressings, the following Cautions are to be observ'd: First, the Dressings should not be remov'd, without urgent Necessity, during the two or three first Days, unless any noxious Humours contain'd within, or any other sufficient Cause, render it proper to open it the second Day; but when the Wound is open'd, it may be cleansed of its Sordes with warm Wine, or Spirit of Wine; and the Remainder of the Cure is to be perform'd as in other Wounds: But care should be taken at every Dressing, which ought to be but once a Day, or once every other Day, to place the Patient with his Hips elevated, and his Head depressed, whilst an Assistant compresses the upper Part of the Wound, to prevent the Intestine from falling out again, and this till the Cure is perfected. When the Wound is heal'd, if the Patient be young, he should wear a proper Truss for a Year or two; but if an Adult, or old Person, the Truss should be wore during Life. But I must not omit taking Notice, that some think fit, immediately after the Operation, before the Wound is dress'd up, to anoint the whole Abdomen with warm Oil of Roses, and then to cover it with warm Linen Cloths, which does not appear to be absolutely necessary.

Many of the most considerable Surgeons of *Paris*, as *Dionis*, *Mery*, *Arnaud*, *Thibot*, and others, advise the Use of a large Linen Tent, after the Operation and Reduction of the Intestine, which being of a considerable Length and Thickness, and fasten'd to a Thread, is to be introduced into the Abdomen, to keep open a Passage for the Vent of such Humours as may be contain'd within. *Widenman*, a modern German Surgeon, and *Dionis*, direct the Tent to be made about an Inch and a half long, and an Inch thick; and tell us, that it ought not to be extract'd, but to be left in till it falls out spontaneously by Suppuration; but *Petit* condemns the Use of them as pernicious, by irritating the Parts, and admitting the external Air; which may do Injury in the Abdomen: Yet I cannot forbear thinking the Use of them very proper, when there is, as it frequently happens, a Discharge of putrid Humours to be made from the Abdomen, in which Case *Le Dran* also approves them; otherwise the Tent may be omitted, and it may be sufficient to apply, according to *Petit's* Method, a thick Pallet or Ball only, for the more speedy Agglutination of the Wound, together with the above-mention'd Bolsters and Bandage.

If in the Operation, upon opening the Bag, the Omentum appears to be suppurated or enlarged, so that it cannot be replaced, a Needle, with a double Thread, is to be pass'd round the sound Part, and tied on each Side, and the vitiated Part afterwards is to be cut off; but the sound is to be returned,

leaving the Thread hanging out of the Wound. The rest of the Treatment must be the same as in other Wounds of the Abdomen, attended with a Suppuration of the Omentum. But if the Omentum is only corrupted, but not thicken'd, the corrupted Part may be left out of the Wound without a Ligature, and the sound return'd; and the corrupted Part will separate, and fall off spontaneously by Suppuration.

But if the prolapsed Intestine itself be found already mortified or corrupted, as sometimes happens when the Operation has been too long delay'd, the Patient is then in the utmost Danger; for, under these Circumstances, the Patients generally die either under the Operation, or soon after. For this Reason they are usually deserted by the Surgeon, upon a Supposition of the Impossibility of doing any Service, and the Apprehension of putting them to farther unnecessary Pain: But as it is better to attempt a doubtful Cure, than abandon the Patient to certain Destruction, and as replacing the Intestine in this mortified State would be attended with certain Death, the Surgeon should cut off the mortified from the sound Part of the Intestine, and stitch the superior Part of the latter to the Edge of the Wound, in the manner specified for Wounds of the Abdomen; by which means many have been known to survive the Disorder, and regain Health, tho' there was little or no Hope of their Recovery. We are encouraged to this Practice, not only by our own Experience, but also that of others: Besides, we are told by *Mery*, that a Man was happily cured, who had four or five Feet of his Intestine cut off, which was mortified in this kind of Rupture, and the sound Part joined to the Lips of the Wound in the abdominal Muscles. *Garengeot* also takes Notice of a Man, whose Intestine being found mortified upon opening the Sack, and return'd by the Surgeon, in that Condition, into the Abdomen, he had soon after a Discharge of his Excrement by the Wound; and a Month afterwards the Flux, by the Wound, not only lessen'd, but the Lips of the Wound itself, being stopp'd with a Pellet or Ball, tied with a Thread, gradually heal'd in such a manner, that by untying the same, when there was Occasion, the Man survived, and had the natural Function of the Parts perform'd as usual, with but little more Trouble.

Le Dran observes, that it is a common Calamity among poor People, who have had the Misfortune of an incarcerated Rupture, to mistake it for an Abscess, and to treat it accordingly, without calling in the Assistance of any Physician or Surgeon; by which means they bring the Part to Suppuration, after intolerable Pains; and upon its discharging Fæces or Worms, which I have sometimes observed, they then implore the Help of the Surgeon. These, he says, generally require nothing more than the Ulcer to be cleansed daily, and treated with some vulnerary Medicine, cover'd with a Plaister of the same Kind; by which means many such Patients have been recover'd, more by Nature than Art, the Ulcer being entirely agglutinated and heal'd; whereas in others it has left an Aperture in the Groin, through which the Fæces, and sometimes Worms, are discharged, as it were, by a new Anus. In Imitation of Nature therefore, who, in this Case, often produces a happy Effect of her own Accord, *Le Dran* (*Obs.* 6c.) does not return the corrupted Intestine into the Abdomen; since by this means the corrupted Parts, and the Fæces, falling into the Abdomen, would bring on the most dreadful Symptoms, and perhaps Death itself: Nor does he cut it off, but only, by Incision, dilates the Place, whose Narrowness occasions the Strangulation, that the Blood may have a free Course; and opens the corrupted Part of the Intestine, that the contain'd Sordes may have a free Discharge. Thus having applied vulnerary Medicines, Cloths dipp'd in camphorated Spirits of Wine, and proper Bandages, to the Parts, he waits a Separation of the corrupted Parts, and spontaneous Agglutination of the sound Intestine with the Lips of the Ulcer, since by this means a great deal of needless Labour may be avoided; but if the Surgeon should have injured the sound Intestine in the Operation, he then thinks it necessary to stitch the Intestine to the Lips of the Wound, which, insinuating, will more intimately unite with each other.

That the Parts will thus agglutinate, or join together, is confirm'd by a late Observation of *Ramdohr*, present Surgeon to his Serene Highness the Duke of *Brunswick*, who, some Years ago, cut off a large Part of a mortified Intestine in a Woman, who had an incarcerated Rupture, which broke off itself; and, joining the two sound Parts of the Intestine together, he inserted one into the other, and tied them together loosely with a String; and, replacing them in the Abdomen, drew them by the String to the Mouth of the Wound; by which means the divided Intestine inflamed, and surprisngly united, the Woman discharging her Fæces afterwards not thro' the Wound, but by the Anus, as before. The Woman afterwards lived in a State of Health, till, in about a Year's time, she died of a Pleurisy; and, upon opening her, the divided Intestines appear'd to be united with each other, of which he made a Present to me, together with Part of the Abdomen, to which they adhered; and I now keep them in Spirits, to convince such as are incredulous, and of a different Opinion.

If the Intestine should be prolapsed into the Scrotum, and so contorted or intercepted, that it cannot be reduced or return'd into the Abdomen, the Surgeon must, in this Case, have recourse to the Operation. The Reader may be furnish'd with more useful Observations upon this Subject in *Saviard, Obs. Chir.* 19. and 20. *Courtial, Obs. Pag.* 150. also in *Le Dran, Obs. Chir.* and three other Dissertations or Descriptions of Cases, in *Commerc. Literar. Norimb. Ann.* 1735. *Pag.* 3. by *Werlhof*, Physician to the King of Great Britain, which are very learned, and worthy of the Reader's Perusal. *Heister.*

Mr. *Sharp* informs us, that the *Hernia Inguinalis*, and *Hernia Scrotalis*, are both call'd by the common Name of *Bubonocoele*; tho' this Appellation is only proper to the first. As this Author makes some Observations not taken Notice of above, and as the Opinion of our own Country Surgeons, whose Judgment is, I believe, inferior to none, will have some Weight in so nice an Operation as that now treated of, I shall give his Sentiments; and am persuaded, that the few Repetitions of what has been said before will be of no Disservice to whoever reads this with a View of being inform'd.

The Rupture of the Groin, or Scrotum, is the most common Species of Hernia, and in young Children is very frequent; but it rarely happens in Infancy that any Mischiefs arise from it. For the most part, the Intestine returns of itself into the Cavity of the Abdomen, whenever the Person lies down; at least, a small Degree of Compression will make it. To secure the Intestine, when return'd into its proper Place, there are Steel Trusses now so artfully made, that, by being accommodated exactly to the Part, they perform the Office of a Bolster, without galling, or even sitting uneasy on the Patient. These Instruments are of so great Service, that were People who are subject to Ruptures always to wear them, I believe very few would die of this Distemper; since it often appears, upon Inquiry, when we perform the Operation for the *Bubonocoele*, that the Necessity of the Operation is owing to the Neglect of wearing a Truss.

In the Application of a Truss to these kinds of Swellings, a great deal of Judgment is sometimes necessary; and for want of it we daily see Trusses put even on Buboes, indurated Testicles, Hydroceles, &c. But, for the Hernias, I shall endeavour to lay down two or three Rules, in order to guide more positively to the Propriety of applying or forbearing them.

If there is a Rupture of the Intestine only, it is easily, when return'd into the Abdomen, supported by an Instrument; but if of the Omentum, notwithstanding it may be return'd, yet I have never found the Reduction to be of much Relief; for the Omentum will lie uneasy in a Lump at the Bottom of the Belly, and, upon Removal of the Instrument, drop down again immediately; upon which Account, seeing the little Danger and Pain there is in this kind of Hernia, I never recommend any thing but a Bag-truss to suspend the Scrotum, and prevent, possibly by that means, the Increase of the Tumor. The Difference of these Tumors will be distinguish'd by the Feel; that of the Omentum feeling flaccid and rumpled, the other more even, flatulent, and springy.

Sometimes, in a Rupture of both the Intestine and Omentum, the Gut may be reduced; but the Omentum will still remain in the Scrotum, and, when thus circumstanced, most Surgeons advise a Bag-truss only, upon a Supposition, that the Pressure of a Steel one, by stopping the Circulation of the Blood in the Vessels of the Omentum, would bring on a Mortification: But I have learnt, from a Multitude of these Cases, that, if the Instrument be nicely fitted to the Part, it will be a Compress sufficient to sustain the Bowel, and at the same time not hard enough to injure the Omentum; so that, when a great Quantity of Intestine falls down, tho' it is complicated with a Descent of the Omentum, the Rupture will conveniently and safely admit of this Remedy.

I have, as yet, consider'd the Rupture as moveable; but it happens frequently, that the Intestine, after it has pass'd the Rings of the Muscles, becomes inflamed; which, enlarging the Tumor, prevents the Return of it into the Abdomen; and, becoming every Moment more and more strangled, it soon tends to a Mortification, unless we dilate the Passages, through which it is fallen, with some Instrument, to make room for its Return; which Dilatation is the Operation for the *Bubonocoele*.

It rarely happens, that Patients submit to this Incision before the Gut is mortified, and it is too late to do Service; not but that there are Instances of People surviving small Gangrenes, and even perfectly recovering afterwards. I myself have been an Eye-witness of the Cure of two Patients, who, some time after the Operation, when the Eschar separated, discharged their Forces through the Wound, and continued to do so for a few Weeks in small Quantities; when, at length, the Intestine adher'd to the external Wound, and then was fairly heal'd.

In Mortifications of the Bowels, when fallen out of the Abdomen into the Navel, it is not very uncommon for the whole gangrened Intestine to separate from the sound one; so that the Excrement must necessarily, over after, be discharged at

that Orifice: There are likewise a few Instances where the Rupture of the Scrotum has mortified, and become the Anus, the Patient doing well in every other respect. These Cases, however, are only mention'd to furnish Surgeons with the Knowledge of the Possibility of such Events, and not to mislead them so far as to make favourable Inferences with regard to Gangrenes of the Bowels, which generally are mortal.

Before the Performance of the Operation for the *Bubonocoele*, which is always to be done in Extremity of Danger, the milder Methods are to be tried; these are, such as will conduce to sooth the Inflammation; for, as to the other Intent of softening the Excrements, I believe it is much to be question'd, whether there can be any of that Degree of Hardness in the Ileum, which is the Bowel diseased, as to form the Obstruction: And, in Fact, those Operators who have unluckily wounded the Intestine, have proved, by the thin Discharge of Forces which has follow'd upon the Incision, that the Induration we feel is the Tension of the Parts, and not the harden'd Lumps of Excrement.

Perhaps, except the Pleurisy, no Disorder is more immediately relieved by plentiful Bleeding than this. Clysters, repeated one after another, three or four times, if the first or second are either retain'd too long, or immediately return'd, prove very efficacious: These are serviceable, not only as they empty the great Intestines of their Excrements and Flatulencies, which last are very dangerous, but they likewise prove a comfortable Fomentation, by passing through the Colon, all around the Abdomen. The Scrotum and Groin must, during the Stay of the Clyster, be bathed with warm Stoops wrung out of a Fomentation, and with these on the Part you must attempt to reduce the Rupture: For this Purpose let your Patient be laid on his Back, so that his Buttocks may be considerably above his Head; the Bowels will then retire towards the Diaphragm, and give way to those which are to be push'd in. If, after endeavouring two or three Minutes, you do not find Success, you may still repeat the Trial. I have sometimes, at the End of a Quarter of an Hour, return'd such as I thought desperate, and which did not seem to give way in the least, till the Moment they went up; however, this must be practis'd with Caution, for too much rough Handling will be pernicious.

If, notwithstanding these Means, the Patient continues in very great Torture, tho' not so bad as to threaten an immediate Mortification, we must apply some sort of Pultice to the Scrotum: That which I use, in this Case, is equal Parts of Oil and Vinegar, made into a proper Consistence with Oat-meal: After some few Hours the Fomentation is to be repeated, and the other Directions put in Practice; and if these do not succeed, I am inclin'd to think it adviseable to prick the Intestine in five or six Places with a Needle, as recommended by *Peter Loeve*, an old *English* Writer, who says, he has often experienced the good Effects of this Method in the Inguinal Hernia, when all other Means have fail'd.

After all, should the Pain and Tenseness of the Part continue, and Hiccoughs and Vomiting of the Excrements succeed, the Operation must take place; for if you wait till a languid Pulse, cold Sweats, subsiding of the Tumor, and emphysematous Feel come on, it will be most likely too late, as they are pretty sure Symptoms of a Mortification.

To conceive rightly of the Occurrences in this Operation, it must be remember'd, that in every Species of Rupture the Peritonæum falls down with whatever makes the Hernia; for the Contents of the Abdomen being immediately enveloped in this Membrane, they cannot push thro' any Orifice, but they must likewise carry a Part of it along with them: So that, in the *Bubonocoele*, the Situation of the Tumor will be in the Cavity of the Scrotum, upon the *Tunica Vaginalis*, and *Spermatic Cord*.

The best way of laying your Patient will be on a Table of about three Foot four Inches high, letting his Legs hang down; then properly securing him, you begin your Incision above the Rings of the Muscles, beyond the Extremity of the Tumor, and bring it down about half the Length of the Scrotum, thro' the *Membrana Adiposa*, which will require very little Trouble to separate from the Peritonæum (call'd the Sack of the Hernia), and consequently will expose the Rupture for the farther Processes of the Operation; but I cannot help, once more, recommending it as a thing of great Consequence, to begin the external Incision high enough above the Rings, since there is no Danger in that Part of the Wound; and for want of the Room this Incision allows, the most expert Operators are sometimes tedious in making the Dilatation. If a large Vessel be open'd by the Incision, it must be taken up before you proceed further.

When the Peritonæum is laid bare, you must cut thro' it carefully, to avoid pricking the Intestines; though, to say the Truth, there is not quite so much Danger of this Accident as is represented; for, generally speaking, the Quantity of Water separated in the Sack of the Peritonæum raises it from the Intestine, and prevents any such Mischief. The Discharge of Water, which follows upon wounding the Peritonæum, and

the Ignorance of the Structure of the Tunica Vaginalis, have made it so generally thought, that Ruptures were received into the Cavity of that Tunica.

It has lately been consider'd by some as an Improvement in the Operation, to forbear wounding the Peritonæum, and to return the Sack entire into the Abdomen, thinking by this means to make a firmer Cicatrix, and more surely to prevent a Relapse for the future: But, besides that this Practice is not founded on Reason, in the very Particular it is recommended for, the seeming Necessity there is of letting out the Waters, that are frequently fetid, of taking away the mortified Part of the Omentum, which we cannot come at without the Incision; and lastly, to leave an Opening for the Issue of the Excrements out of the Wound, in case an Eschar should drop from the Intestine; put out of Dispute, in my Opinion, the Impropriety of this new Method.

The Peritonæum being cut thro', we arrive to its Contents, the Nature of which will determine the next Process; for, if they be Intestine only, it must directly be reduced; but if there be any mortified Omentum, it must be cut off; in order to which, it is advis'd to make a Ligature above the Part wounded, to prevent an Hæmorrhage; but it is quite needless, and in some measure pernicious, as it puckers up the Intestine, and disorders its Situation, if made close to it. For my Part, I am very jealous, that Wounds of the Omentum are dangerous; on which Account I cannot pass over this Part of the Operation without cautioning against cutting any of it away, unless it is certainly gangrened; and, when that happens, I think it adviseable to cut off only some of the mortified Part, and leave the rest to separate in the Abdomen, which may be done with as much Safety as leaving the same Quantity below a Ligature.

When the Omentum is removed, we next dilate the Wound; to do which with Safety, an infinite Number of Instruments have been invented; but, in my Opinion, there is none we can use, in this Case, with so good Management as a Knife; and I have found my Finger, in the Operation, a much better Defence against pricking the Bowel, than a Director which I intended to employ: The Knife must be a little crooked, and blunt at its Extremity, like the End of a Probe. Some Surgeons, perhaps, may not be steady enough to cut dexterously with a Knife, and may therefore perform the Incision with Probe-sticks, carefully introducing one Blade between the Intestine and Circumference of the Rings, and dilating upwards. When the Finger and Knife only are employ'd, the manner of doing the Operation will be by pressing the Gut down with the fore Finger, and carrying the Knife between it and the Muscles, so as to dilate upwards about an Inch, which will be a Wound large enough.

The Opening being made, the Intestine is gradually to be push'd into the Abdomen, and the Wound is to be stitch'd up; for the Purpose some advise the quill'd, and others the interrupted Suture, to be pass'd thro' the Skin and Muscles; but as there is not so much Danger of the Bowels falling out when a Dressing and Bandage are applied, and the Patient all the while kept upon his Back, but that it may be prevented by one or two slight Stitches thro' the Skin only, I think it by all means adviseable to follow this Method, since the Stricture of a Ligature in these tedious Parts cannot but be dangerous.

Hitherto, in the Description of the Bubonocèle, I have supposed it loose or separate in the Sack and Scrotum; but it happens sometimes in an Operation, that we find not only an Adhesion of the Outside of the Peritonæum to the Tunica Vaginalis, and Spermatie Vessels, but likewise of some Part of the Intestines to its internal Surface; and in this Case there is so much Confusion, that the Operator is often obliged to extirpate the Testicle, in order to dissect away and disentangle the Gut; tho', if it can be done without Castration, it ought. I believe, however, this Accident happens rarely, except in those Ruptures that have been a long time in the Scrotum without returning; in which Case the Difficulty and Hazard of the Operation are so great, that, unless urged by the Symptoms of an inflamed Intestine, I would not have it undertaken. I have known two Instances of Persons so uneasy under the Circumstance of such a Load in their Scrotum, tho' not otherwise in Pain, as to desire the Operation, but the Event in both proved fatal; which, I think, should make us cautious how we expose a Life for the sake of a Convenience only, and teach our Patients to content themselves with a Bag-truss, when in this Condition.

The Operation of the Bubonocèle in Women so exactly resembles that perform'd on Men, that it requires no particular Description; only in them the Rupture is form'd by the Intestine or Omentum falling down thro' the Passage of the Ligamentum Rotundum into the Groin, or one of the Labia Pudendi, where causing the same Symptoms as when obstructed in the Scrotum, it is to be return'd by the Dilatation of that Passage. *Sharp.*

Of the HERNIA CRURALIS.

What bears a very near Resemblance to the *Bubonocèle*, is the Disease which modern Physicians usually call a *Hernia Cruralis*, or *Femoralis*; for it is seated in the upper and exterior Part of the Thigh, near the Groin, where the Crural Vein and Artery descend from the Belly to the Thigh. And tho' this Disorder be pretty common, especially to the weaker Sex, yet, which is strange, very few have taken the Pains to examine or describe it; but it has almost universally pass'd, without Distinction, for a *Bubonocèle*, or *Hernia Inguinalis*. *Verheyen* was the first, that I can find, who wrote any thing about a *Hernia Cruralis*; tho' *Barbette* has some obscure Indications of the same thing. After *Verheyen*, *Palsyn* treated this Subject in a more explicit and copious manner; as did also, after him, *Garengeot*, in his Chirurgical Works, Chapter of the *Hernia*; *Koch*, in his Dissertation on the *Hernia Cruralis*; and *Le Dran*, in his Chirurgical Observations, Tome the second. *Garengeot* pretends, that *Paulus* was long ago acquainted with this Disorder, but does not tell us the Place in that Author where it is described; and, for my Part, I could never find any thing in him about it. On the same Occasion he adds some Words, as taken from *Barbette*, which yet I do not find in that Author's Chapter of an *Hernia*.

For the better understanding the genuine Nature and Properties of this Disease, it will not be amiss briefly to remark, from Writers of Anatomy, that the Place where the *Musculus Psoas* and *Iliacus*, and over them the Crural Vein and Artery, pass from the Abdomen to the Thigh, is not sufficiently fortified to sustain the Rentency of the Intestines, being inclosed only with the Peritonæum, the Fascia Lata, and with the Fat and Skin. Moreover, in viewing a Skeleton, we may observe in the Os Ileum, above the Acetabulum, a small Depressure, which is cover'd by the lower Part of the *Musculus Obliquus Descendens*, in manner of a Ligament extended archwise, which some call the Ligament of *Vesalius*, others the Ligament of *Poupart*. Thro' this small Opening, or Arch, the Intestines or Omentum sometimes force their Way, and so excite a peculiar Kind of *Hernia*. *Garengeot* is of Opinion, that this Species of *Hernia* happens more frequently than others; but, for my Part, I have seen and cured Multitudes of *Hernias* of all kinds, but scarce ever met with two Instances of a *Hernia Cruralis*.

Tho' there be a very considerable Agreement between the *Hernia Inguinalis* and the *Hernia Cruralis*, it is easy enough to distinguish them by a careful Inspection of the peculiar Places in which they are situated: For a *Hernia Inguinalis* is form'd not far from the Pudenda, where the Ring of the Muscles of the Abdomen, and the Process of the Peritonæum, the Anatomy of which Parts is necessary to be known, descend to the Scrotum, and the Tumor extends itself from the Ring towards the Scrotum. But a *Hernia Cruralis* affects the outer Parts of the Groin, usually arising in the uppermost, outer, and fore Part of the Thigh, above the *Acetabulum*, or at the Junction of the Thigh with the *Acetabulum*. This Species of *Hernia* is also, for the most part, lesser and rounder than the *Inguinalis*, and consequently far more subject to be confounded with a *Bubo*; for the *Inguinalis* is usually somewhat oblong in Figure. However, since the *Hernia Cruralis* has yet no peculiar Word, that I know of, in *Germany* to express it, I think it would not be amiss to constitute two Species of *Hernia Inguinalis*, one of which should be the *Hernia Inguinalis interior*, and the other, which would be the same with the *Hernia Cruralis*, should be call'd the *Hernia Inguinalis exterior*.

As to what respects the Event and Cure of this Disorder, it very little differs from what has been before observed and directed concerning the *Hernia Inguinalis*; only take Notice, that those who labour under a *Hernia Cruralis* sometimes run a far greater Hazard of their Lives than under the *Hernia Inguinalis*. It is to be observed also, in the Cure of the *Hernia Cruralis*, that in restoring the prolapsed Intestines we take care to force them gently back more towards the Linea Alba, but by no means towards the Os Ileum, as in the Case of the *Hernia Inguinalis*. If the prolapsed Intestines can be replaced by the Hands, the best Method to establish them in their proper Situation is by applying a convenient Plaster, with a Bandage over it, as we directed for the *Hernia Inguinalis*: But if the Intestines are incarcerated, or intercepted, in such a manner, that neither Oils, nor Ointments, nor Cataplasms, nor Clysters, nor the Fumes of the strongest Tobacco injected, nor any other Medicines of this Kind, which have been before recommended, are of any Effect, but dreadful Symptoms begin to appear, we must next have recourse to the surgical Operation, as directed for the *Bubonocèle*. The Bag being laid open, in the manner above described, the Passage by which the Intestines burst forth is to be somewhat enlarged; and if the Disease be recent, the Bag itself, according to the Example and Advice of *Petit*, is to be replaced whole and untouch'd, together with the prolapsed Intestines and Omentum, as gently as possible. It is not difficult, for the most part, to force back and restore the Intestines, because,

because, as *Ferreyen* in his Anatomy rightly observes, most commonly a very small Portion of them, and sometimes only the outer Side, or even but a sort of *Appendicula*, appear prolapsed about the Thigh. The Intestines being thus replaced, the Wound must be very exactly bound up, in the same manner as after the Operation for the *Bubonocoele*, which is the ready way to have it happily and speedily conglutinated. If a more considerable Part of the Intestines be fallen out, if there be a Co-alition of the prolapsed Intestines with the next adjacent Parts, or if there be any other Circumstance which hinders the convenient Restitution of the prolapsed Parts, without Incision of the Bag; or if the Disorder, by its long Continuance, has occasion'd a Corruption of the Intestines; in these Cases we must proceed, but with the greatest Caution, to cut the Bag in the manner above directed; then, if the Intestines are sound, they must be gently put back in their proper Place; and if they are connected with the adjacent Parts, a Separation must be made, tho' with great Circumspection, for fear of wounding the sub-jacent Crural Vein and Artery, and so exposing the Patient to the Danger of present Death. When the Intestines or Omentum are found to be corrupted, you are to proceed in the manner above directed in that Case. *Heister, Chirurgi.* See *HERNIA*.

BUBULA is used as a Substantive, that is, without *Caro*, by *Scribonius Largus*, N^o. 188, 189. and by *Celsus* in several Places, particularly, *Lib. 2. Cap. 18.* where he says, *Inter domesticas Quadrupedes levisissima Suilla est, gravissima Bubula*: "Of tame Quadrupeds, Swines Flesh is the lightest, and Beef "the heaviest."

Sir *Theodore Mayence* recommends the following Preparation of the Flesh of the Ox, in Cases where obstinate Gonorrheas have degenerated into habitual Stillicidioms.

Take, says he, Beef indurated by the Smoak of a Fire; and after having taken off the external black Part, divide it into Filaments, which must be carefully freed from the Salt by repeated Washings. Then cleansing them well with a Towel, let them be put into an Oven, when the Bread is taken out of it, and dried till they are capable of being reduced to a Powder; of which let two Parts be intimately mix'd with one Part of the Powder of ripe Ivy-berries: Let one Dram of this Powder be taken for many Mornings successively, drinking a Glass of simple Hydromel, or a Draught of the Decoction of Eryngo-root. For Constitutions abounding with Phlegm, it is sufficient to dry the Beef without washing it at all.

BUBULCA, in *French*, *Bouvier*, or *Petense*, is a small River-fish, three or four Fingers-breadth in Length, and one and a half in Breadth, flat, and of the Colour of Silver. It commonly keeps in the Mud, and is always dirty when taken. It is cover'd with large broad Scales, has a small Mouth, and no Teeth, and has a forked Tail.

The Flesh is aperitive. *Lemery des Drogues.*

BUCCA, *γνάθος*. The Part that lies under the Ball of the Cheek. *Galen, Com. 2. de Artic.*

It is also taken for the Cheek itself, and sometimes for the Mouth.

BUCCACRATON, *βυκκάκρατον*. A *Bucca*, or *Buccella*, that is, *Morsel*, of Bread sop'd in Wine, which served, in old Times, for a Breakfast. *Castellus.*

BUCCATUM, Glased. *Ruland.*

BUCCEA, **BUCCELLA**, *βύκκα, φάρμακον*. A *Græco-barbarous* Word, signifying such a Fragment of any thing as a Man can put in his *Bucca*, or *Mouth*, and eat at one Time. *Castellus.* See *BOLUS*.

Paracelsus calls by the Name of *Buccella* the carneous Excrescence of a Polypus in the Nose; because he supposes it to be a Portion of Flesh parting from the *Bucca*, insinuating itself into the Nose. *Lib. de Apostem. Cap. 20.*

Buccellare, in *Rulandus* and *Johnson*, is to feed or cram with Bits and Morsels.

BUCCELATON, *Buccella purgatoria, Buccellatus purgatorius, βυκκέλατον*. A purging Medicine, made up in Form of a Loaf, consisting of Scammony prepared, with its Correctives, and put in fermented Flour, and so baked in an Oven, according to *Aetius, Tetrab. 1. Sermon. 3. Cap. 100.* But *Paulus Aegineta* directs it to be made into a solid Kind of Electuary with Honey, or like a Cheesecake, after it is baked, consisting of roasted Scammony, with the Seeds of Smallage, Anise, Fenel, and Pepper, *Lib. 7. Cap. 5.*

BUCCELLA. See *BUCCEA*.

BUCCELLARE. See under *BUCCEA*.

BUCCELLATUS. See *BUCCELATON*.

BUCCINA, *κέρυξ*. The same as *BUCCINUM*, which see.

BUCCINATOR. The Name of a Muscle, which, by its Substance, constitutes the *Buccæ* or Cheeks.

This Muscle is so call'd, because, in Trumpeters, it forces the Breath. This Muscle does not spring from the Gums of the upper, and end in those of the nether Jaw; nor is it of

that Figure which vulgar Anatomists would persuade us; or interwoven with various Orders of Fibres, as others pretend. It arises broad and fleshy, from the fore Part of the *Processus Corone* of the lower Jaw-bone; from hence proceeding with direct Fibres, it adheres to the Gums of both Jaws, and is so inserted to the Angle of the Lips.

Through the Middle of this Muscle passes the *Ductus Salivaris superior*, which *Placentinus* observed, and call'd *Liniculum robustum* (as *Caspar Baubine* writes). Besides the Use Trumpeters make of this Muscle, it also pulls the Lips or Mouth to one Side. *Cæuper.*

BUCCINUM, Offic. *Buccinum album leve maximum, septem minimum spirarum*, *List. Hist. A. A. 135.* *Buccinum rostratum majus crassum, orbibus paululum pulvinatis*, *Ejusd. Hist. Conch. 4. Sect. 14. N. 4.* THE WHELK. *Dale.*

Whelks, calcin'd, work the same Effects as the Purple-fish, but are of a more caustic Quality. Fill'd with Salt, and then burnt in a crude earthen Pot, they make a good Dentifrice, and are applied with Success in Combuitions, where it must be left alone to harden like a Shell; for, as soon as the burnt Place is brought to a Cicatrix, this Medicine falls off of itself. A Quicklime is made of them. *Dioscorides, Lib. 2. Cap. 5.*

The Whelk is a Sea Shell-fish, of which there are many Sorts; but they all seem to agree exactly as to their Medicinal Virtues, being Alkalies and Absorbents; and, by Calumination, they are converted into Lime; and these Properties they possess in common with all other Shell-fish.

BUCCULA. The fleshy Part under the Chin. *Castellus.*

BUCELLATIO. A way of stopping the Blood, by applying Lint upon the Vein or Artery. *Castellus.*

BUCERAS, **BUCEROS**, *βουκερας, βουκερος*. See *BOUCERAS*.

BUCRANION, *βουκράνιον*, from *βός*, an Ox, and *κράνιον*, a Head. The Herb *Antirrhinum*, so call'd because the outer Face of the Flower resembles an Ox's Head. *Blancard.*

BUCTION. A Name in *Severinus Pinaus, de Natis Virginitatis, Lib. 1. Cap. 5.* for that Part in Virgins, otherwise call'd *HYMEN*, which see.

BUFFELI. A Ring made of the Horn of a Buffalo, which, being worn upon the Ring-finger, is said to cure the Cramp. *Johnson.*

BUFO. The Toad. A well-known Animal, thus distinguished.

BUFO, Offic. *Schrod. 5. 272. Mer. Pin. 169. Rondel de Aquat. 2. 221. Aldrov. de Quad. Ovip. 609. Jonst. de Quad. 131. Charlt. Exer. 27. Bufo sive Rubeta, Raii Synop. A. 252. Ind. Med. 23. Bufo terrestris major, Schw. Rept. 159. Rana rubeta, tum palustris, tum terrestris, Gesn. de Quad. Ovip. 64. THE TOAD. Dale.*

This Animal was by the *Latins* also called *Rubeta*, by the *Greeks* *εὐρύς* and *ρὺσαλός*, and by the *English* a *Toad*. It is among the Number of those Animals which have only one Ventricle in their Heart, and is of the Frog-kind, tho' somewhat larger; for which Reason it is by some called *Rana terrestris, omnium maxima, & venenosa*. Its Body is thick, its Back flat and broad, its Belly turgid and inflated. Its Skin is full of Tubercles of an unequal Bulk; and so strong and tough, that it can hardly be pierced with a sharp-pointed Piece of Wood. It is of a cineritious Colour, with brown, blackish, and yellowish Spots intermixed. This Animal moves slowly, is of the amphibious Kind, copulates and disposes of its Eggs in the same Manner with other Frogs, if we except that *American* Species of *Surinam*, call'd the *Pipa*, the Female of which lays her Eggs on the Back of the Male, in order to be nourish'd. The Toad lives upon Insects and Vegetables, but not Earth. It does not croak like the Frog, but makes an indistinct, obscure kind of Noise, somewhat resembling the Word *Gru*, or rather *Bu*; from which Circumstance, some are of Opinion, it received the Name *Bufo*. In the Winter, and in the Day-time, especially when the Sun shines, it is found lurking in shady Places, Fens, Stables, Collections of Stones, and in Garden-beds, especially under Sage. It is also sometimes found in the Hearts of Stones, but these are Circumstances which come more properly under the Consideration of the Natural Historian, than of the Physician. The Toad is by some affirmed to be a very long-liv'd Animal. Some are of Opinion, that the Toad is called *Rubeta*, from *Rubus*; because they are found among the Bramble-bushes in Nurseries and Hedges. Others think it receiv'd the Name *Rubeta* from the reddish Spots sometimes found on its Belly. But these are Controversies of too trifling a Nature to deserve our Attention or Regard.

The Toad is killed by being covered over with Tar, by sprinkling Salt of Tartar upon it, or by being laid upon common Salt; see *Oligerus Jacobus de Ramis, Eph. N. G. D.* or by the Juice of Tobacco. *Etmuller* observes, that Toads, upon having Oil of Tartar per Deliquium apply'd to them, express the most exquisite Sense of Pain by their Gesticulation, and soon after die. Gardeners commonly banish Toads from their Ground,